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AUSTIN SMITH, M.D.

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ALIEN PHYSICIANS TRAINING IN HOSPITALS IN THE UNITED STATES

Harold S Diehl, M D , Minneapolis, Edwin L Crosby, M D , Chicago
and
Paul K Kaetzel, B A , Washington, D C

In the past few years there has been a great increase in the number of alien physicians on house staffs of hospitals in the United States Temporary immigration of alien physicians for the purpose of taking training has been greatly facilitated by the U S Information and Educational Exchange Act of 1948, which became effective in July, 1949 Since that time hospitals have been authorized to offer internships and residencies to alien physicians after securing approval of their educational programs by the Department of State Approvals have now been granted to about 800 hospitals,

Yearly surveys of house staffs in training at civilian hospitals approved for internships and/or residencies have been conducted by the Health Resources Advisory Committee of the Office of Defense Mobilization These surveys have brought together information concerning alien physicians serving as interns and residents The report that follows is based on surveys conducted for the 1953-1954 training year Coverage represented 99% of all interns and residents in training at civilian hospitals approved for such training The term "civilian hospitals" includes all hospitals except those operated by the Department of Defense and the Public Health Service

SURVEY FINDINGS

A total of 5,589 alien physicians held appointments as interns, residents, or fellows on house staffs at civilian hospitals approved for training in July, 1953, the beginning of the 1953-1954 training year Three years earlier the total was 2,072 Of the July, 1953, total, 1,787, or about one-third, were first year interns and the remaining two-thirds, 3,802, were residents or fellows Alien physicians represented 22% of the total house staffs at approved civilian hospitals (table 1)

Without the services of aliens hospitals would have a considerably greater proportion of unfilled positions than the present 20% for residencies and 30% for internships Many young physicians who would normally be taking postgraduate medical education are on active military duty

For the most part, aliens were found to be receiving training in general hospitals, chiefly those without major teaching affiliations Over 60% of all alien interns and residents were in nonteaching general hospitals Alien physicians were found to be concentrated in tuberculosis hospitals, where they accounted for almost one-half of the house staffs They comprised over one-quarter of the house staffs of general nonteaching hospitals and almost one-quarter of the staffs of mental hospitals, however, they represented a much smaller proportion of the staffs of teaching hospitals—an average of 12%

Regional Distribution —Hospitals in 45 states and the District of Columbia reported intern and residency programs in operation during 1953-1954, and only 3 of these states—Mississippi, North Dakota, and Arkansas —were without the services of alien residents and interns Owing chiefly to state differences in licensing laws and requirements, the alien physicians were concentrated in certain sections of the country Over two-thirds of the aliens were in five states—New York, Ohio, New Jersey, Illinois, and Massachusetts In New Jersey, 65% of the house staff positions were filled by aliens, and in New York, Illinois, and Ohio the comparable percentage was over 30 (table 3)

Year of Graduation —The alien intern had been out of medical school longer than the citizen intern, on the average More than 94% of the United States citizens who were first year interns in 1953-1954 completed medical school in 1953, in contrast, only 20% of the aliens were 1953 graduates Similarly, for aliens serving in residencies, the median year of graduation was 1949, for citizens, 1950

Age —The typical alien house staff member was about two years older than his citizen counterpart. For the training year 1953-1954, the median age was 29 years for alien first year interns as compared to 26 for the citizen intern, however, among residents and fellows, the median age for both citizens and aliens was 28 years

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From the Health Resources Advisory Committee (Dr Diehl, Dr Crosby and Mr Kaetzel) Dean of Medical Sciences University of Minnesota (Dr Diehl) Director American Hospital Association (Dr Crosby) and from the Office of Defense Mobilization (Mr Kaetzel)

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SUPPORT DURING LABOR

OUTLINE OF PRACTICE AND SUMMARY OF RESULTS FROM THE MOTHER'S VIEWPOINT

Herbert Thoms, M D
and
Ernestine Wiedenbach, M A , R N , New Haven, Conn

In recorded history, assistance or support for the woman in childbirth has had a prominent place from earliest times In all social orders, the midwife occupied a prominent position In colonial America, she was often granted property and privileges that were given to no other member of the community Today, the usefulness of the woman specifically trained for assistance in childbirth finds excellent expression in the midwife system of obstetric care so highly developed in certain European countries

There is no question that the great change from obstetric care in the home to that in the hospital has brought untold benefits in safety for mother and child, this is an epoch in modern preventive medicine However, it may be questioned whether certain aspects of the practice of obstetrics in hospitals may not be subject to speculation as to the quality of their usefulness We refer to such practices as the separation of mother and infant (the central nursery system), the inability of the husband to stay with his wife during the labor period, the use of the general labor room in which a woman in labor is exposed to others in various stages of the process, and the use of heavy sedation to obliterate a greater part of the mother's memory of her childbirth experience

Our own questioning of some of these things became manifest when, in association with the department of pediatrics, we established in 1946 rooming-in for mothers and infants as a regular part of the university teaching service Shortly after this, in 1947, we had the good fortune to have as a volunteer member of our staff the late Mrs Helen Heardman, a British physiotherapist extensively trained in methods of physiotherapy applied to obstetrics and the author of several books on the subject Her demonstrations of what could be accomplished during labor and delivery in "unprepared" mothers was a revelation to all who witnessed her work We pay tribute to her pioneer work in an important field of obstetrics

This paper deals with one aspect of the preparation for childbirth program, namely, support of the mother during labor Other aspects of the regimen have been discussed elsewhere [1]

Our concept of support during labor we propose to give in outline, following which, we shall enumerate certain results from the mother's point of view This latter information was obtained from questionnaires that mothers filled out just before their discharge from the hospital

OUTLINE OF SUPPORT

Support during labor depends for its effectiveness not only on the sympathy and interest of those in attendance but on their comprehensive understanding of the physical and psychological aspects of the birth process and the details and importance of the preparation program Effectiveness of support is also predicated on normal labor, that is, labor in a healthy woman in whom there is no cephalopelvic disproportion and no abnormal fetal position, in whom the soft parts are normally dilatable and the uterine contractions of proper regularity and of suitable force, and in whom delivery is possible without undue strain A guiding principle is that expressed by Dr Helene Deutsch,[2] namely, "to find a technic of delivery in which the psychic value of the mother's active participation in the process is taken into account, and to reunite mother and child as soon as possible after birth "

Practices that we follow include the following 1 We try to make the mother feel important as an individual We think of her as the central figure in the situation We include her in our conversations with others in attendance We consult her when it is appropriate to do so, and we introduce ourselves and others who may enter her room 2 We try to give her confidence in her environment We keep her informed of her progress and condition We stay with her, and, if we have to leave even for a brief time, we tell her why we are leaving and when to expect our return We make sure that she is able to call for attendance (call light or buzzer) should she wish it. We tell her in advance of examinations or special procedures that may be carried out. We try to be gentle, considerate, and protective of her when carrying out such procedures 3 We institute measures to promote relaxation These measures include privacy (individual room), quiet surroundings, a cool cloth to forehead, if desired, back rub, if desired, a clean, dry pad under her, as necessary, and warmth—hot water bag, if desired 4 We instruct her in techniques that lead to effective performance These techniques are abdominal breathing, relaxation, pelvic rocking, pushing with expulsion contractions, and panting at the proper time 5 We endeavor to encourage her at all times by voice, look, and manner, always speaking with sincerity and remembering that the eyes can smile as well as the lips and that actions in themselves often speak with profound impressiveness

A general outline of the support procedures that we endeavor to carry out on all mothers, whether prepared or not, can be summarized in the following statement In our management of labor, we try to carry out a definite pattern, following several principles First, we keep the mother informed of her progress She is told about the position of her baby and of its progress through the birth canal The devious explanation, the hushed tone, or the

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[1] Thoms H., and Wyatt, R. H One Thousand Consecutive Deliveries Under a Training for Childbirth Program, Am. J Obst. & Gynec 61 205 1951 Thoms H., and Karlovsky E. D Two Thousand Deliveries Under a Training for Childbirth Program ibid 68 279 1954

[2] Deutsch H The Psychology of Women A Psychoanalytical Interpretation, New York Grune & Stratton Inc. 1945

overly sympathetic attitude are all studiously avoided Second, the mother is in a private room and not left alone unless she desires it, which may be the case very early in labor when she is napping between contractions In any event, an attendant (nurse, medical student, or physician) is immediately available If the mother desires, she may have her husband with her until she is moved to the delivery room The physician sees her at proper intervals, especially during certain important periods in the labor Third, in prepared mothers the techniques of relaxation and breathing are instituted when they are necessary In unprepared mothers, an attempt is made to institute these techniques as far as possible In the average labor, the time for this is usually when the external os is dilated about 4 cm It is at about this time that the contractions are apt to be stronger and more regular The relaxation position and abdominal breathing techniques can alleviate much of the woman's discomfort, which in turn will reinforce her confidence If the husband is with his wife and has attended the classes for expectant parents, he knows something of what is going on He is often helpful as a back rubber This is done with the mother on her side in the general relaxation position and consists essentially of massage with firm pressure over the lower back If at any time the mother's morale seems weakening, attention is immediately given This attention may consist simply of encouragement, further instruction in relaxation, or the giving of a sedative When the latter is given, the mother is told that it will help her relax, which it usually does

The critical period of labor is at the end of the first stage when the cervix is almost fully dilated This is the transition stage It is at this time that the mother may show considerable anxiety and have more or less severe backache Continuous attention and encouragement are mportant during this period The mother is told that fter 10 or 12 contractions she will experience relief uring this transition stage, sedation is often helpful or whiffs of gas may be given Many women, however, pass through this period without too much discomfort, practicing relaxation during contractions and quietly dozing between times

The relaxation and breathing techniques are also valuable in the second stage of labor As each contraction finishes, the woman is instructed to take three or four breaths by abdominal breathing, this will assist her in continuing relaxation She is told not to resist the expulsive effort of the uterus She is kept informed as to the progress of the fetal head and is told that she will have a feeling of stretch during the actual delivery, also that soft panting breaths will prevent a too rapid delivery Nitrous oxide or trichlorethylene (Trilene) is administered whenever the woman desires it, and infiltration anesthesia is used when episiotomy is done

Most women who have been prepared and who have spontaneous births are quite aware of all that goes on during delivery, and immediately after this event they have a feeling of well-being and are inclined to be talkative They are often quite interested in the expulsion of the placenta Our practice is for the mother to remain in the delivery suite for at least one hour after the birth of her baby The infant is usually put to the breast at some time during this period

Experience has shown that in normal labor the period of greatest discomfort is almost universally at the end of the first stage, the transition period Soon after this, as the head begins to descend, the picture usually changes markedly, and the woman who may have been fussing about her discomfort settles down to the task before her Anesthetic agents not only are not withheld during the second stage but are sometimes urged on the woman who is having too much discomfort but not asking for help Those who are in attendance at this time should be wary of misinterpreting the facies of effort as that of pain

Certain points need further emphasis We are convinced that a woman's sense of security is enhanced by not being alone when she is in active labor, that she prefers to be in a private room, and that for most women the presence of the husband adds greatly to the sense of assurance and comfort

During early labor the mother is permitted to move about, to sit or lie in bed as she desires At any time during the first stage of labor, if she is having more discomfort than she is willing to bear, the physician sits with her for a while to find the cause of her difficulty Something is done about it—encouragement, instruction, sedation, etc Attendants must not expect that all women who have attended classes are equally well prepared or that they will go through an ideal birth experience It must be impressed upon many women that the need for sedation to combat discomfort or to aid in relaxation does not in any sense represent failure on their part The woman who is anxious to do well often sets too high a standard of accomplishment for herself and as a result may become discouraged when things do not proceed as rapidly or as satisfactorily as she fancied they would

QUESTIONNAIRE

A questionnaire was used in order to obtain some evaluation of the mother's own assessment of her labor and delivery It is usually filled out a day or two before the mother goes home and is of course voluntary on her part The content is seen in the complete report of a 23-year-old primipara, formerly a stenographer Her child was born in December, 1953

1 Describe how you felt, what happened, what the contractions (pains) felt like, what you wanted to do or have done for you

(a) In the labor room

'Between contractions I felt good The contractions started with a slight pain, getting stronger, and then leaving The nurse helped me do abdominal breathing when I thought I couldn't do it I was not in the labor room too long until the contractions gave me a rather bearing down feeling"

(b) In the delivery room before your baby's birth

"I had a definite bearing down feeling with my contractions I liked the idea of a mirror I watched almost everything I feel I had one of the best experiences I'll ever have in life"

2 How did your labor start?

'The pains started as a small cramp, something like menstrual cramps"

3 What helped you during your labor and delivery?

'Abdominal breathing Medicaments"

4 What did you mind during your labor and delivery?

No answer

5 What were your first thoughts after the birth of your baby?

"I wanted to hold the baby I was just relieved that it was all over"

(*a*) How did you feel?
"I felt just fine "

6 How did your delivery compare with what you expected?
"It was much easier than I expected and not so long as I expected '

7 If you have another baby, would you like to have it the same way as this one?
Definitely "

8 Did you attend mothers' classes?
"Yes "

(*a*) What did you gain from the classes that helped you in your labor and delivery?
"I think the exercises helped me very much Also the lectures we had in mother s classes gave me a clear picture of what would happen That helped my mental attitude greatly The tour of the hospital helped too I knew exactly where I would go and what the equipment looked like I believe the parent's classes helped, too

9 We would value any suggestions you may have or any frank statement you would care to make that would help us in our guidance of mothers through childbirth
No statement

10 What is your impression of rooming in?
"I think rooming in is something all hospitals should have There are many mothers with first babies who know nothing about caring for them Rooming-in gives them a chance to learn how to take the best care of their babies Also a mother gets to know her baby before she goes home Having the baby in the room with you helps pass the days quickly My stay whizzed by I would like to mention also that I received very good care during my stay "

RESULTS

Questionnaires similar to this one were received from 142 mothers, 83 of them had attended classes, and 59 had not Of the mothers who attended classes, 29 were delivered by private physicians Of those who did not, one was so delivered

The group that did not attend is of particular interest for it is obvious from their answers that many of them have somewhat lower intellectual attainments than the majority of the women in the group that did attend classes Their nonattendance at classes apparently was due to lack of interest. We recognize this as a challenge and suggest that a simpler and shorter form of class work may be desirable for such mothers This would be aside from the regular program The survey shows that of those who did attend (83), 76, or 92 7% of the mothers had a high school education In the group that did not attend (59), 22, or 37 1%, had a high school education In the group that attended classes, 79 5% of the mothers consulted a physician before the fifth month of pregnancy Of those that did not attend, 30 5% said they consulted a physician before the fifth month, 15 did not answer

In the group attending, the presence of the husband or relative was commented on in 77 instances in the 83 labors It was emphasized as very helpful in 36 instances In the group not attending, this was commented on in 47 instances in 59 labors and emphasized in 12 instances One woman wrote, "So glad you love our husbands as much as we do", this has its own message

In answer to question 3, "What helped you during your labor and delivery?" 43 mothers who attended classes emphasized the confidence that was felt in the attention received, the presence of the husband, and the interest and helpfulness of the attendants Thirty-seven mothers emphasized the help they received from practicing the relaxation and breathing techniques Twenty-two mothers emphasized the aid received from the administration of medicaments In the group not attending, 33 mothers emphasized the presence of the husband and help from attendants, 5 emphasized relaxation and breathing techniques, and 26 commented on medication One woman stated tersely, "1 Husband, 2 Demerol, 3 Nitrous oxide "

In response to question 4, "What did you mind during labor?" the answers that seem significant for us are as follows Of the women who attended classes, 7 minded episiotomy and stitches, 4 rectal examinations, 21 severe pain, 2 hypodermic injection, 2 noise, talking, etc in delivery room, and one shaving with a dull razor Of the women who did not attend, 4 minded episiotomy and stitches, 4 rectal examinations, 18 severe pain, and one noise, talking, etc in delivery room These expressions we believe, usually reflect some inattention or lack of skill on the part of attendants

With regard to question 8, "What did you gain from classes that helped you in your labor delivery?" 58 of the mothers who attended emphasized the knowledge of the physiology of childbirth Fourteen mothers emphasized that the tour of the obstetric division gave familiarity of the labor and delivery rooms Forty-six women emphasized the relaxation and breathing techniques The importance of classes as a shared experience was also recorded Certain short answers were meaningful One woman wrote simply, "Peace of Mind," another, "What to expect and how to relax "

Twenty-eight women in both groups were further questioned as to their reaction to the rooming-in arrangement. There was no unfavorable comment, and all were enthusiastic in its favor One woman finished a rather lengthy discussion of the subject with, "It is just nice to have the baby near you to look at, too "

COMMENT

We believe the results of the questionnaire have been helpful to us in evaluating our efforts in carrying out the program We are convinced of the usefulness of planned and integrated support for all women during labor and urge its consideration as part of all labor and delivery room practice Those attending parturient women can be more effectual in their ministrations if they are willing to adopt a definite labor support regimen, thoroughly understood as a cooperative enterprise Greater benefits can come from such an endeavor if the experience of physicians and nurses is shared in regularly held conferences The mother's point of view is often greatly helpful in pointing out weak spots in the program.

SUMMARY AND CONCLUSIONS

We believe that support in labor should provide an atmosphere of friendliness, interest, understanding, and encouragement coupled with effective comfort-producing measures that will enable the mother to put forth her best effort in the birth of her child Everyone who attends her contributes to the effectiveness of such support This includes her husband or other family member, physician, nurse, medical student, student nurse, porter, aid, etc The more each participates wholeheartedly and cooperatively in giving support, the better will be the mother's experience

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IMPORTANCE OF GASTRIC MUCOSA IN MECKEL'S DIVERTICULUM

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The object of this brief communication is to reemphasize some of the complications of Meckel's diverticulum, the majority of which are the result of ectopic gastric mucosa The course of the embryologic mishap responsible for the persistence of this congenital remnant has often been reviewed, during early fetal life bits of gastric mucosa are occasionally misplaced in the diverticulum, and in this functioning gastric mucosa peptic ulcers develop In a group of 25 consecutive cases of symptom-producing remnants of the omphalomesenteric duct, 4 patients had persistent umbilical sinuses that required excision and were found to extend to the ileum Two patients had rupture of an ulcer in Meckel's diverticulum with all the signs of acute abdominal disease, two had strangulation obstruction due to a persistent strand of tissue extending from the diverticulum to the abdominal wall, and one had a Meckel's diverticulum associated with intussusception In the remaining 16 patients, rectal bleeding was the cardinal symptom

ECTOPIC GASTRIC MUCOSA

It is well known that gastric mucosa may be found in a Meckel's diverticulum We are inclined to believe, after microscopic study of the diverticula associated with bleeding or local rupture of a peptic ulcer, that bleeding or rupture occurs only when gastric mucosa is present There is a striking correlation between rectal bleeding from and perforation of a Meckel's diverticulum and the resence in it of gastric mucosa Microscopic sections of ckel's diverticulum without reference to symptoms, ording to Gross in "The Surgery of Infancy and hildhood," show gastric mucosa in 53% of cases However, when the cardinal symptoms are bleeding or perforation, over 90% of the diverticula contain gastric mucosa We suspect that, if numerous microscopic sections are studied, resected diverticula that have bled will show gastric mucosa in nearly 100% of cases In some instances, a small island of gastric mucosa was found and in it a tiny bleeding ulcer

CLINICAL FINDINGS

Vague abdominal symptoms, such as those ordinarily ascribed to chronic appendicitis, are rarely due to a Meckel's diverticulum If during operation a Meckel's diverticulum is unexpectedly found, it should be removed if conditions are favorable, however, exploratory operation primarily for the removal of a Meckel's diverticulum on a patient who has never had rectal bleeding will rarely be justified The outstanding, and usually the only, symptom of the presence of a Meckel's diverticulum is bleeding from the rectum The mother states that her child (probably from 1 to 6 years old, rarely over 12) has suddenly passed a large amount of blood An analysis of the amount of blood passed and its color is of prime importance If the stool containing blood was passed in the toilet bowl the mother will have overemphasized the amount of blood passed, even a teaspoonful of blood in the bowl will make the water red enough to frighten the mother The color of the blood is equally important Usually, the first bowel movement in an otherwise normal child will be formed and will contain some brick-red blood The second movement likewise will be brick-red Only if the bleeding is very profuse and persistent will bright red blood be passed Occasionally, a perfectly well child may go into unexplained shock and after several hours become pale, weak, and listless—show all the signs of hemorrhage—although no blood has been seen One should be suspicious of a hemorrhage from a Meckel's diverticulum, stool examination may provide the answer

Whenever a mother calls and says her child has passed blood, every stool should be saved in order that the amount of blood passed can be estimated A rectal examination done soon after the report of bleeding will often be of value because the gloved finger may withdraw some material which has the almost diagnostic brick-red color If the patient is an infant every diaper containing stool must be saved and examined One may well be led astray by incorrect observations by the mother In one instance a mother reported recurring blood in the stool of her 2-year-old child with no other symptoms Stool examination revealed the harmless cause, the child preferred beets to all other vegetables

It is very important when evaluating blood in an infant's or child's stool to learn its relation to the bowel movement If the blood is on the outside of the stool, if it is bright red, and if the infant cries when the stool is passed, the diagnosis will likely be a fissure of the rectum, common in infants but not in older children If the child passes a normal stool, then in a few minutes requests to go to the toilet again and passes a few cubic centimeters of bright red blood, sometimes clotted, the child probably has a polyp in the rectum Such a diagnosis is easily confirmed by a rectal examination or by the mother's report that something looking like a cherry will appear at the rectum after bowel movement and then disappear spontaneously Polyps high in the rectosigmoid may be difficult to differentiate from a bleeding Meckel's diverticulum The symptomless or slightly anemic child may suddenly pass a fair amount of blood from the rectum, and the blood may be somewhat dark because it has been retained in the rectum for some hours until it has the "brick-red" appearance of blood so characteristic of a bleeding Meckel's diverticulum

Bleeding from the intestine in children may be caused by many conditions, such as intussusception, diffuse polyposis, ulcerative colitis, endemic diarrhea, Henoch's purpura, diarrhea (in the newborn), and a number of

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AEC-Mor 1050

other less common causes In all such cases associated symptoms and specific physical findings make the differentiation from a bleeding Meckel's diverticulum relatively easy When a child with confirmed bleeding from the rectum but otherwise without symptoms is admitted to the hospital, only a few studies are necessary besides routine physical and laboratory examination including a rectal examination after an enema has cleared the rectum A rectosigmoidoscopy is done to rule out polyps in the visible portion of the distal bowel, and a barium enema study to rule out polyps or other pathological condition in the colon There is little use in wasting time and the patient's money by trying to demonstrate a Meckel's diverticulum with roentgenographic studies In summary, one may say that if a child has passed considerable confirmed blood by rectum, if that blood has been dark red, and if further studies show no other cause for bleeding, surgical exploration usually is indicated

SURGICAL CONSIDERATIONS

It is axiomatic that a child who has bled enough to lower the hemoglobin level is given a transfusion before or during operation, or both The Meckel's diverticulum is usually found about 18 in (42 26 cm) proximal to the ileocecal valve An acceptable procedure is to start at the ileocecal valve and inspect the small intestine from there proximally If a diverticulum is not found after going well up the jejunum, the procedure should be repeated by gently stripping the intestine through the fingers The virtue of this procedure is supported by events in the case of a healthy 4-year-old boy who suddenly passed a considerable amount of brick-red blood on two occasions He was operated on, and the surgical report stated rather definitely that no Meckel's diverticulum was present Another episode of bleeding followed, and he was admitted to the Children's Memorial Hospital showing definite signs of past hemorrhage He was again operated on, and a Meckel's diverticulum, about the size and shape of a walnut, was found seemingly in the mesentery After it had been freed from surrounding structures it was found that the diverticulum, typically attached to the antimesenteric border of the ileum, had been drawn against the mesentery, where it had been covered with a layer of adhesions that looked like part of the peritoneum of the mesentery The adhesions were undoubtedly the result of previous inflammation In this position the diverticulum had been mistaken at the first operation for an enlarged lymph node The diverticulum is usually easily removed by clamping it transversely at its base with a toothed ductus clamp, after it is removed the stump is closed and inverted with a row of fine silk Lembert stitches Occasionally, because of the size of the base of the diverticulum, it is necessary to resect a segment of small intestine In such cases a simple end-to-end anastomosis is done

Clinical Manifestations in Twenty-Five Patients with Meckel's Diverticulum

Clinical Manifestations	No of Cases	No with Gastric Mucosa in Diverticulum
Bleeding alone	13	11*
Bleeding and perforation	2	2
Bleeding with intussusception	1	0
Perforation	2	2
Umbilical drainage	4	1†
Strangulation obstruction	2	0
Intussusception	1	1

* One specimen not sectioned
† One specimen lost epithelium necrotic in one
‡ Epithelium necrotic in both

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CLINICAL EVALUATION OF TUBADIL

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The efficacy of *d*-tubocurarine as an adjunct to anesthesia has long been established The ability of curare to relax striated muscle led to its use in control of muscle spasm following traumatic surgery [1] and in the treatment of neurological disorders [2] Recently, *d*-tubocurarine was combined in a slowly absorbed menstruum and marketed under the trade name of Tubadil Each cubic centimeter of Tubadil contains *d*-tubocurarine chloride pentahydrate, 25 mg , oxycholesterol derivatives, 312 mg , white wax, 20 mg , chlorobutanol anhydrase, 5 mg , and deproteinized peanut oil, 562 mg The aqueous solution of curare is intended to provide a brief relaxant effect for only the period of surgery with no carry-over into the postoperative period Tubadil, on the other hand, is designed to provide relaxation for spasm and resulting pain that become apparent some hours after the effect of the anesthetic has worn off

The encouraging report of Fuller [3] prompted our use of this drug in a variety of surgical cases This report deals with 100 patients who underwent anorectal surgery and who received Tubadil postoperatively and a control group of 100 similar patients who did not receive Tubadil All patients were operated on after spinal anesthesia was administered.

CLINICAL STUDY

The average dose of Tubadil was 1 5 cc (37 5 mg of *d*-tubocurarine chloride) intramuscularly at the time of surgery or immediately postoperatively This was followed by an additional 1 5 cc in 12 hours Extreme caution must be exercised when employing larger doses or more frequent administration of Tubadil To empha-

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The Tubadil used in this study was obtained from Endo Products Inc Richmond Hill N Y

[1] Fuller J D Use of Slowly Absorbed Suspension of *d* Tubocurarine Chloride in Traumatic Injury J A M A 143 789 (July 1) 1950

[2] Jonez, H D Management of Multiple Sclerosis Postgrad Med 11 415 1952.

[3] Fuller J D Advantages of the Preoperative Use of Slowly Absorbed *d* Tubocurarine Anesthesiol 13 370 1952.

size this vitally important precaution further, the following case is cited Preoperatively, a patient with a herniated intervertebral disk was given Tubadil, 2 cc every 12 hours After the fourth dose, the patient complained of difficulty in breathing The physician who visited the patient reduced the dosage of Tubadil to 1 cc Shortly after the fifth dose (1 cc), the patient became apneic and required heroic resuscitative measures to prevent death The total dose of Tubadil was 9 cc (225 mg of *d*-tubocurarine) in 48 hours This instance should not incriminate the drug as dangerous or harmful per se, but rather serve to illustrate the hazard attached to Tubadil as perhaps with any other drug when used indiscriminately or in excessive amounts

TABLE 1 —*Distribution of Patients According to Sex and Age*

	Patients in Control Group	Patients Receiving Tubadil
Total no of patients studied	100	100
No of men patients	53	54
No of women patients	47	46
Average age, yr	41 5	40 45

No change was made in premedication, postoperative narcotic orders, or routine supportive care ordinarily given to these patients The patients were unaware of the purpose of the drug, and the nurses administered narcotics for postoperative pain as indicated in the usual manner

In both the control series and the group receiving Tubadil, the patients were selected consecutively A comparison of age and sex between the two groups, as shown in table 1, indicates there was an even distribution

At first there was some concern that the use of Tubadil might increase postoperative urinary retention, so it was decided to keep an accurate account of the number of patients requiring catheterization Actually the number of patients requiring catheterization was 14 less than in the control group While this may not represent an unusually large decrease, it is significant that urinary retention was not increased This encouraging result might be explained by the relief of severe perianal pain obtunding reflex spasm of the urinary sphincters

TABLE 2 —*Average Number of Doses* of Narcotic per Day*

Postoperative Day	In Patients in Control Group	In Patients Receiving Tubadil
1	2 1	1 9
2	2.2	1 5
3	1 6	0 7
4	1 0	0 3
5	0 6	0 1
Total	7 5	4 5

* Average dose was 10 mg of morphine sulfate subcutaneously

The patients were observed over a five day postoperative period during which time the doses of Tubadil and narcotics were carefully recorded Each patient was visited daily during the five day period We were impressed that most patients who received Tubadil appeared much more comfortable than those in the control group, although this is difficult to record statistically because of the considerable difference in pain threshold among patients and the variance of surgeons in their operative technique and postoperative care The most impressive effect of the drug in lessening narcotic demand (table 2) appeared after the second postoperative day

Analysis of the narcotic demand substantiates our clinical impressions There was an average total reduction of three doses of morphine in a five day period, as shown in table 2 Percentagewise this represents a decrease in narcotic demand of 38% Additional and continued effect of the drug is evidenced by the third day, when 53% (table 3) of those receiving Tubadil required no narcotics as compared to 29% in the control group, and by the fifth day, when 93% as compared to 61% in the control group required no narcotics

COMMENT

In this group of 100 patients who received Tubadil, there were no reactions or complications, except for transient diplopia and muscular weakness Serious complications may occur with overdosage of the drug as is illustrated by a near fatality in a patient who received 9 cc of Tubadil within a 48 hour period before surgery Since patients who receive Tubadil usually have some impairment of muscle control, they should be assisted when out of bed to avoid injuries due to falls

TABLE 3 —*Number of Patients Not Requiring a Narcotic*

Postoperative Day	Patients in Control Group	Patients Receiving Tubadil
1	1	6
2	9	18
3	29	53
4	39	77
5	61	93

It should be clearly recognized that a drug that contains 25 mg of *d*-tubocurarine chloride per cubic centimeter is potentially dangerous, even though it is absorbed slowly when injected intramuscularly Although we have not observed evidence of uneven absorption of Tubadil when administered intramuscularly in the proper dosage, the result of intravenous administration can be hazardous This is illustrated in a report [4] that we received of a death following accidental intravenous administration of the drug The clinical impression was that death resulted from respiratory paralysis caused by the curare component of Tubadil

Since the encouraging results following the use of Tubadil in anorectal surgery, it has been used in other surgical procedures, such as surgery of the eye, orthopedic surgery, and general abdominal surgery

CONCLUSIONS

In a series of 100 patients who underwent anorectal surgery, *d*-tubocurarine chloride in a slowly absorbed menstruum, Tubadil, was given intramuscularly with the intention of decreasing muscle spasm A series of 100 patients not receiving the drug served as controls The results of the study indicate that postoperative pain, as well as narcotic demand, was decreased when Tubadil was used There is also some evidence that postopera-

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4 Zintsmaster, J L Personal communication to the authors

tive urinary retention was decreased Other than transient diplopia and muscular weakness, which may be expected of a muscle relaxing drug, the only complications that we are aware of were caused by overdosage or intravenous injection of the drug Because of decreased voluntary muscle control, patients should be assisted when out of bed Since one death has been reported following the accidental intravenous administration of Tubadil, extreme caution must be exercised to assure that the drug is given only by the recommended intramuscular route To avoid serious complications, the dosage of Tubadil should be limited to 1 or 2 cc (25 or 50 mg), and the dose should not be repeated more than once after a 12 hour interval, except in rare or unusual circumstances and then only under the direct supervision of the attending physician It is our clinical impression that Tubadil offers certain advantages in the postoperative management of the hemorrhoidectomy patient and that the drug is worthy of further study in other types of surgery

RECENT ADVANCES IN CLINICAL ASPECTS OF POLIOMYELITIS

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Anyone who has had experience with infections caused by the virus of poliomyelitis is aware of the many complexities encountered in delineating the clinical manifestations accurately Difficulty in diagnosis, particularly differential diagnosis, is increased by pressure on the physician from a fearful public Improved understanding of the disease in its many aspects will contribute to the peace of mind of all persons concerned, including the practicing physician

The virus of poliomyelitis belongs to the group of infectious agents designated as obligate intracellular parasites These agents require the environment of a living cell for growth and multiplication Although the distribution of the agent may be widespread in the body of the host, the poliomyelitis virus does have a peculiar affinity for cells of the central nervous system, particularly those of the anterior horn of the spinal cord and its bulbar extensions Careful study of the pathological picture produced by this viral agent indicates that many portions of the neuraxis may be involved without corresponding clinical involvement While such observations make accurate correlation of clinical with pathological findings more difficult, they contribute to a better understanding of the fact that the distribution of muscle paralysis is characteristically spotty and haphazard and usually asymmetrical There is no infallible method available at present for making a definite diagnosis of poliomyelitis during the earlier phases of the infection The physician must rely on clinical judgment for interpretation and evaluation of the findings in each individual case As a clinician gains experience with poliomyelitis, he becomes more aware of the protean nature of this variable clinical syndrome However, certain clinical features of the disease are sufficiently consistent to merit some emphasis

CLINICAL TYPES OF INFECTION

For convenience, infection with the virus of poliomyelitis in the human subject has been classified into four general groups (1) silent infection, (2) abortive poliomyelitis, (3) nonparalytic poliomyelitis, and (4) paralytic poliomyelitis

Group 1 —Silent infection is asymptomatic and inapparent and offers no clinical problems

Group 2 —Abortive poliomyelitis, probably a common type of infection with this agent, is of considerable importance, particularly during an epidemic The clinical picture, which is at best ill defined, is characterized by a brief, febrile illness associated with the symptoms of malaise, anorexia, nausea and vomiting, headache, sore throat, constipation, and nonlocalized abdominal pain Clinical manifestations of coryza, cough, pharyngeal exudate, and diarrhea are not considered common findings in poliomyelitis The practical value of attempting to recognize cases of abortive poliomyelitis, particularly during epidemic outbreaks of the disease, stems from the generally held clinical impression that bed rest during the febrile course and for a week or so after defervescence may be a factor in avoiding progression of the viral invasion

Group 3 —Nonparalytic poliomyelitis constitutes a most interesting and important aspect of this viral infection It is characterized by the presence of nuchal and spinal rigidity and by soreness and stiffness of the posterior muscles of the neck, trunk, and limbs In cases of this type, headache, vomiting, constipation, drowsiness, fever, leg ache, and sore throat are often reported On the other hand, "running nose," diarrhea, and cough are not found The differential diagnosis between nonparalytic or preparalytic poliomyelitis and other conditions that simulate this disease is of considerable practical importance Since many clinical conditions may be confused with nonparalytic or preparalytic poliomyelitis, even the most experienced, conscientious, and thorough clinician has difficulty in establishing an accurate differential diagnosis The following table summarizes the clinical experiences of the Southwestern Poliomyelitis Respiratory Center in Houston, Texas, from 1950 to February, 1954 Of patients admitted to this center with the clinical diagnosis of acute poliomyelitis, about 15% proved on closer study to be suffering from conditions other than poliomyelitis Almost 26% of cases were classified as nonparalytic poliomyelitis, and the diag-

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Read in the Symposium on Recent Advances in Poliomyelitis before the Joint Meeting of the Section on Experimental Medicine and Therapeutics and the Section on Internal Medicine at the 103rd Annual Meeting of the American Medical Association San Francisco June 2[illegible] 195[illegible]

Tabulations included in this report were prepared for a teaching syllabus by the staff of the Southwestern Poliomyelitis Respiratory Center and are reproduced with the permission of Dr William A. Spencer Medical Director

This paper was discussed by Dr William A. Reilly San Francisco and Dr James F Bosma, Salt Lake City nosis in these cases was not changed to paralytic poliomyelitis on the basis of a one year follow-up The remainder presented clinical manifestations of paralytic poliomyelitis Conditions other than those involving the central nervous system occurred in 58 cases and included pneumonia, influenza, rheumatoid arthritis, rheumatic fever, scurvy, and hysteria Of those patients with central nervous system involvement, 26 were considered to have encephalitis, type as yet undetermined, 6, mumps meningoencephalitis, 9, bacterial meningitis, 9, virus encephalomyelitis (infectious neuronitis), 3, lymphocytic choriomeningitis, 3, brain abscess, and 1, syphilis Other conditions with central nervous system involvement that were confused with poliomyelitis included 11 other cases of infection, 4 cases of brain tumor, 3 of cerebral hemorrhage, and 1 of spinal cord tumor

*Cases Initially Diagnosed as Acute Poliomyelitis, 1950 to February, 1954**

Final Diagnosis	No	%
Not poliomyelitis	151	15 2
Nonparalytic poliomyelitis (1 year follow up)	256	25 7
Paralytic poliomyelitis	587	59 1
Total	994	100

* Prepared for Teaching Syllabus by the staff of the Southwestern Poliomyelitis Respiratory Center and reproduced through the courtesy of Dr William A Spencer, Medical Director

Proper evaluation of such an interesting group offers a real challenge to the clinician While accurate diagnosis is impossible in certain of these cases, careful evaluation of the findings for each case tends to turn the thinking of the physician and of the parents away from the diagnosis of poliomyelitis Avoidance of unnecessary admission to a hospital, particularly during epidemic periods, may spare the patient exposure to other diseases, including poliomyelitis In patients with a history of increasing omiting and intensification of soreness and stiffness of e neck, trunk, and limb muscles, the diagnosis of poliomyelitis must be seriously considered Complete examination of the undressed child is necessary Diagnostic maneuvers include evaluation of the patient's efforts to assume the sitting position, demonstration of nuchal and spinal rigidity, observation of the typical tripod sitting position, flexing of the chin on the chest, and testing of ability of the patient to kiss his knees All these diagnostic maneuvers are used to demonstrate authentic cervical and back rigidity The Brudzinski and Kernig signs and demonstration of head drop with the patient lying in the supine position may prove useful

Demonstration of back rigidity in the young, uncooperative patient may be difficult The fingers of the palpating hand are placed along the spines of the lower thoracic and lumbar vertebrae, and the back of the patient is extended gently with the patient lying in the prone position In a normal child, even when he is uncooperative and struggling, progression of flexion of the spine is evidenced by differential elevation of the fingers along the spinal processes as the back is gradually extended In contrast, on examination of the patient who has back rigidity, the examiner feels all the palpating fingers raised together in a single plane The back feels "poker-like" This sign, while not always elicited satisfactorily, is often sufficiently suggestive to arouse suspicion that meningeal irritation is present and to warrant diagnostic lumbar puncture

Other findings that suggest virus invasion include the presence of hyperesthesia and muscle tenderness and changes in the superficial reflexes, such as the cremasteric and upper and lower abdominal reflexes The presence of signs and symptoms suggesting central nervous system involvement warrants the performance of a lumbar puncture This procedure should be done under optimal conditions so as to avoid trauma and contamination Characteristic findings include increased cell count (more than 10 cells per cubic millimeter, and usually less than 500 total), with early predominance of polymorphonuclears and later predominance of lymphocytes, and normal glucose level Protein level is normal (35 to 40 mg per 100 cc) or may be slightly elevated early in the course of the infection Within two to three weeks the protein level may rise to 300 mg per 100 cc Great variability in cell count has been reported Pleocytosis may be lacking entirely, or the cell count may on occasion be elevated to 1,500 to 2,000 cells Nevertheless, a fairly consistent pattern has been associated with poliomyelitis virus infection of the central nervous system, and it is of considerable diagnostic importance A tabulation of the diagnostic criteria follows

Suggestive
  Slight fever
  Meningism stiff neck, stiff back
  Head drop
  Tripod sitting position
  Headache
  General malaise
  Vomiting or gastrointestinal symptoms
  Muscle pain or tenderness
  Reflexes normal or occasionally hyperactive

Confirmatory
  Flaccid muscle paralysis
  Absence of tendon reflexes in affected areas
  Spinal fluid showing pleocytosis 10-500 cells, elevated protein level *normal glucose level no bacteria* polymorphonuclears early, lymphocytes later

Positive
  Isolation of virus
  Rising titer of antibody level (virus neutralization test)

Group 4—Those who become paralyzed constitute a clinical consideration of major importance Scrutiny of the reflex patterns is of considerable prognostic significance Changes in the deep tendon reflexes, either increase or decrease, forewarn of impending paresis of the muscles involved Definite loss of reflexes, especially when all means of reflex reinforcement are used, is convincing evidence of paralytic involvement The distribution of paralysis is asymmetric, involving several muscles of the same segment, and is characteristically spotty

Once the diagnosis of paralytic poliomyelitis has been made, the question arises whether the involvement will progress and the patient become more acutely and, possibly, critically ill, and especially whether more serious manifestations of poliomyelitis, such as respiratory complications, will develop Certain clinical findings are suggestive Patients in whom the process goes on to muscle paralysis of varying grades of severity often have a flushed face accompanied by perioral pallor and a persistent but usually not high fever that tends to be sustained at a level without marked diurnal variation A septic fever is not considered characteristic of poliomyelitis infection The conjunctivas are often suffused The patient is apprehensive and seems frightened out of proportion to what might be expected from unfamilar procedures such as laboratory tests and separation from parents These patients often have a "worried" expression, and they seem to have a feeling of foreboding Cortical hyperirritability may be manifested by spontaneous, jerky movements that are often observed during sleep, which is usually fitful and restless Some patients show definite fibrillary twitching of muscle bundles This is regarded as an important forewarning sign of progressive muscle involvement Opsoclonia, a form of nystagmoid movement of the eye, is an interesting sign that has been observed in some patients admitted to the Southwestern Poliomyelitis Respiratory Center It is characterized by an oscillatory inability to fixate and is accentuated on extreme lateral gaze The slow and rapid component of ordinary nystagmus is not seen This ocular abnormality is not associated with permanent injury to the eye but is often associated with progression of paralysis and is regarded as a sign of prognostic import While the Babinski sign may be present early, its persistence for more than a few days is usually accepted as evidence that one is not dealing with acute poliomyelitis infection

Progression of the disease process, which is of paramount importance at this stage in the clinical syndrome, is variable In general, further involvement occurs while the temperature is still elevated, and progression of paralysis does not continue for more than 48 hours after the temperature has reached normal Persistent fever that cannot be explained by factors other than poliomyelitis, such as infection by secondary bacterial invaders, must be regarded as a serious prognostic sign The progressive signs of paralytic poliomyelitis with serious muscle involvement may be summarized as follows

- Suggestive
  - History of unusual exertion during prodromal symptoms in adults
  - History of rapid onset of flaccid paralysis
  - Presence of cranial nerve nuclear involvement (bulbar), especially lower cranial group
  - Distribution of paralysis with involvement of the deltoid muscles
  - Prostration
  - Irritability and apprehension
  - Higher temperature elevation
  - Erythema or florid appearance
  - Tachycardia
  - Hypertension
  - Nystagmoid ocular movements on extreme lateral gaze
- Confirmatory
  - Definite evidence of breathing difficulty
  - Change in sensorium severe apprehension excitement and confusion
  - Swallowing difficulty
  - Unconsciousness
  - Cyanosis
  - Peripheral circulatory collapse
  - Extreme hyperthermia
  - Pulmonary edema
  - Myocardial failure

In evaluating the clinical course of these patients, the clinician is constantly on the alert for early signs of such serious complications Any change in voice, especially toward nasal quality, must be regarded with suspicion Progressive development of an ineffectual cough and evidence of difficulty in swallowing are early and important signs of more serious trouble to come When early signs of breathing difficulty are recognized, the clinician and his staff are frequently hard pressed to keep abreast of the rapid changes in the clinical picture, and keen clinical judgment is needed to decide exactly when mechanical breathing aids are to be used for optimal therapeutic results The following criteria for clinical determination of types of breathing difficulty have served admirably as a working guide for physicians at the Southwestern Poliomyelitis Respiratory Center

- Paralysis of the Breathing Muscles
  - Shallow and rapid regular respirations
  - Diminished movement of diaphragm and intercostal muscles (demonstrable by fluoroscopy)
  - Decreased duration of phonation as in counting
  - Decreased vital capacity and resting tidal volume (demonstrable by basal metabolic rate machine)
  - Dilation of the nares
  - Preoccupation with breathing effort
  - Use of accessory neck muscles
  - Dyspnea
- Obstruction of the Airway
  - Bulbar involvement
  - Mucus accumulation in the oropharynx
  - Inability to swallow
  - Shallow often irregular respirations (fear of aspiration)
  - Audible rhonchi (stethoscope bell over mouth)
  - Inspiratory stridor with vocal cord paralysis
- Involvement of the Respiratory Center
  - Irregular rapid incoordinate ineffectual respiration with occasional deep breath and periods of apnea
  - Usually associated with signs of central involvement
    - Hyperthermia
    - Hypertension severe
    - Peripheral circulatory collapse and vasomotor instability
    - Cardiac dysrhythmias

Fluoroscopic examination of the patient has been found helpful in evaluating respiratory efficiency, particularly in the case of infants and small children The progressive signs of inadequate ventilation, resulting in hypoxia and carbon dioxide retention, follow

Clinical

1. Restlessness apprehension anxiety sleeplessness or lethargy and change in sensorium
2. Florid appearance increasing pulse rate progressive or sudden elevation of blood pressure constricted pupils and profuse sweating
3. Dyspnea intermittent cyanosis occasional hallucinations and panic reactions
4. Persistent cyanosis pallor circumoral twitching and coma

Laboratory

1. Rising alveolar $CO_2 > 6.5\%$
2. (Compensation) Rising venous CO_2 combining power > 60 vol %
3. Arterial anoxemia $< 94\%$ saturated hemoglobin
4. (Decompensation) Falling blood pH < 7.4

COMMENT

The physician's enormous responsibility in making a diagnosis of poliomyelitis, especially during epidemic outbreaks, is apparent to everyone who has had experience with this difficult disease The best therapeutic course is often hard to follow, and the physician is constantly harassed by the problems of making crucial decisions Since fatigue, excitement, and emotional strain are not good for the patient, it seems reasonable to urge that patients with nonparalytic or uncomplicated paralytic poliomyelitis be kept at home for treatment if at all possible Such a policy would also conserve hospital and financial resources During the period when the infection is progressing it may be extremely difficult, if not impossible, for the physician to judge whether his patient requires special help in the hospital Conscientious vigilance on the part of the parents and the physician should serve to inform the physician of the appearance of danger signals in sufficient time for safe transportation of the patient to a medical center if special treatment is needed Each case requires individual consideration, and the physician in charge must assume responsibility for directing the therapeutic plan in every instance

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RECENT ADVANCES IN THE TREATMENT OF POLIOMYELITIS

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While our horizons are bright with the prospects of preventing and modifying paralytic poliomyelitis, we are faced with the grim fact that in this country there are thousands of persons now undergoing treatment for their residual disability and 1,500 still residing in respirators of one kind or another, and that based on past experience there will probably be at least 30,000 new cases this season It is also important to note that as yet there is no known drug or treatment technique that will substantially alter the course of the disease, once it has been clinically established However, the combined efforts of physicians, engineers, manufacturers, physical therapists, occupational therapists, nurses, physiologists, technicians, research groups, and volunteer organizations dedicated to support such work have produced many advances in therapy that accomplish better end results These advances can be roughly divided into two groups, those that reduce the mortality rate and those that attempt to restore function as completely as possible

REDUCTION OF MORTALITY RATE

The advances responsible for the reduction in mortality include the early recognition and treatment of impaired vital functions, the treatment of pulmonary complications, and the establishment in smaller communities of poliomyelitis teams Life is threatened only in those patients with involvement of vital functions such as respiration and circulation A mortality rate based on all poliomyelitis cases, including the nonparalytic and mildly paralytic, is not very meaningful because it is likely to reflect a high proportion of the nonparalytic cases reported, but if based only on those with involvement of vital functions, then the figures will bear a relationship to the severity of the disease and the efficacy of treatment Over the past few years, these advances have reduced the mortality rate in serious cases from over 50% to less than 20%, and in some places as low as 13%

Only a few years ago the tank respirator was used as a last resort, and the poor results were used to prove that it was dangerous, today it is used early, before respiratory failure develops One no longer waits for dyspnea, tachycardia, and cyanosis Routine measurement of the vital capacity on admission gives a quick check on the status of the respiratory muscle involvement [1] Serial measurements will reveal progressive involvement and allow putting the patient in a respirator when the vital capacity drops to approximately 30% of predicted normal Better understanding of the mechanics of respiration and the physiological effects of the respirator have led to more rational and successful use The desired tidal volume and minute volume can be predicted by one of several methods by use of data obtained on normal subjects,[2] by use of a formula requiring measurement of oxygen consumption,[3] or by use of a nomogram prepared from metabolic tables [4] Spirometers, basal metabolism machines, gas meters, or special ventilation meters [5] are available to measure tidal volumes, thus allowing the required setting of the respirator pressure and rate Greater accuracy in measurement and control is available by determining the alveolar carbon dioxide concentration This is now feasible with the infrared carbon dioxide analyzer, which gives continuous direct analysis sufficiently rapid to follow each breath accurately [6] The use of these methods helps prevent hypoventilation and hyperventilation, the undesirable physiological effects of hypoventilation are well known, but the effects of hyperventilation are not as well defined or understood

The nursing care of the patient in the tank respirator has been greatly facilitated by means of a positive-pressure attachment to the mouth or tracheostomy,[5] or by means of a dome covering the entire head This allows opening of the respirator for necessary procedures while maintaining ventilation for the patient A few years ago, tracheotomy was a subject for debate, today it is widely accepted and advocated The disagreements now center around when and how many times to perform the operation, rather than whether it should be done Establishment of a tracheostomy early, before an emergency develops, has reduced the incidence of complications Experience has proved the need for careful suctioning and care of the tracheostomy, including humidification of

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inspired gas, in order to prevent or minimize plugging and crusting A variety of attachments to the tube are available for delivering humidified air, oxygen, aerosols for medication, and positive pressure for ventilation [5] The ability to secure an adequate airway and to provide adequate ventilation has allowed differentiation of the causes of circulatory failure and shock into those due to viral action in the medulla or myocardium, those secondary to asphyxia, and those secondary to the effects of the respirator The differentiation of those due to asphyxia from those due to the respirator is most important, for the treatment is quite different If shock is present, increasing the intratank negative pressure will increase the shock, whereas the addition of intratank positive pressure on expiration may reduce the shock by increasing venous return to the heart [7] The use of arterenol by continuous intravenous drip may sustain the peripheral blood pressure long enough to allow the return of a damaged circulatory center

After the immediate results of viral action, the next complications most likely to threaten life are pneumonitis and atelectasis The ability to culture and to test the antibiotic sensitivity of the causative organisms allows the rational selection and use of an increasing array of effective antibiotics However, their frequent and prolonged use soon results in the predominance of organisms such as Pseudomonas aeruginosa and Proteus vulgaris, which are relatively insensitive to most available drugs Pulmonary atelectasis is a frequent and major complication requiring aggressive therapy This complication is being attacked quite successfully by a number of techniques, each of which and various combinations of which have their advocates, the spectrum ranges from nebulization to tracheotomy A technique for nebulization producing supersaturated air, and the incorporation of various drugs such as bronchodilators, antibiotics, detergents, and trypsin [8] are proving to be useful, both prophylactically and therapeutically Included with this should be systematic rotation of the patient, intermittent Trendelenburg position, and periodic deep breaths for lung expansion

If these measures are not successful, bronchoscopy with or without direct instillation of trypsin may succeed, a recommended dose of trypsin is 250 mg of Tryptar in 5 cc of Sorenson's buffer (anhydrous dibasic sodium phosphate 6 6 mg per cubic centimeter, anhydrous monobasic potassium phosphate 2 7 mg per cubic centimeter in water for injection, pH 7 1) If this fails and a tracheostomy is not present, one should be provided Besides these procedures, it is most important to provide a method for inducing a good cough Most of the techniques currently in use are unsatisfactory The thorax can be manually compressed during expiration A deep breath can be achieved by increasing the intratank negative pressure This is accomplished by attaching a vacuum cleaner to the porthole When the negative pressure is 30 to 40 cm of water, the bed pan port should be opened with a jerk to allow rapid passive expiration More recently, a device has been developed which produces up to 40 mm Hg positive pressure to the airway and by means of a selenoid valve then suddenly switches to 40 mm Hg negative pressure [9] This technique provides the best mechanical cough available thus far and promises to be a great help in the treatment of atelectasis, as well as an effective means of prophylaxis Further improvement and developments along these lines can be anticipated

It is obvious that the new and rapidly changing techniques and equipment cannot be readily available or even familiar to all practicing physicians This is especially true in communities where only an occasional case of severe poliomyelitis occurs, it is in such areas that mortality runs highest A number of communities have recognized this situation They have been able to meet it and reduce their mortality to levels comparable with mortality levels in medical centers by organizing poliomyelitis teams among their local physicians A team usually consists of an anesthesiologist to supervise the respiratory problem, a man to supervise the medical problems—such as pulmonary, circulatory, renal, and nutritional—and a man to supervise the orthopedic care A general surgeon or otolaryngologist should supervise the tracheotomy The functions of this team are to give special interest to the problems and techniques in poliomyelitis, to develop and implement consistent policies of treatment, and to accept the responsibility of caring for these patients The cumulative experience of men on the team provides the know-how to solve acute problems and to achieve a greatly improved mortality rate and final end result.

RESTORATION OF FUNCTION

After the patient has survived the acute phase and become medically stabilized, the emphasis of treatment is shifted from life saving to function restoration This shift in emphasis is more involved and complex than a superficial glance indicates In the acute phase, all activity must be rigidly disciplined and centered on life saving, forcing curtailment of many desirable and long-range activities that are at that time secondary In the restoration phase, a different philosophy prevails in which the discipline is directed toward the attitudes and actions of the patient and staff to provide strong motivation and the will to work for recovery During this phase, the patients and their families must begin the long and difficult task of picking up the pieces to make the best of what is left It is essential to have strong direction and coordination of the team in order to formulate a realistic goal and to progress in an orderly fashion toward it and also to prevent overactivity with resulting fatigue, wasted activity in nonproductive areas, false hopes by the patient, and conflicting statements on prognosis Experience indicates that it is difficult for one staff to carry the two philosophies simultaneously, for it is inevitable that the life-saving philosophy will dominate, therefore separate staffs for these functions will give best results While these staffs are basically separate in terms of responsibility, the greater the degree of cooperation and mutual understanding the better will be the final result.

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The Lungs—Once the medical emergency is over, it is time to begin efforts to decannulate the tracheostomy and to remove the patient from respiratory equipment In some patients, it may be possible to accomplish this in a very short time, but in others it may require many months, and in some cases it may be impossible The tendency is to procrastinate and leave patients in respiratory equipment too long, early and continued efforts should be made to get them out Serial vital capacity determinations will indicate the progress of the respiratory muscles and can be used as a guide in removing equipment A decrease of the vital capacity may indicate that the patient is being pushed too fast Improved design and better understanding of the cuirass respirators (formerly called chest or portable respirators) have greatly increased their usefulness At present there are two basic designs commercially available One is a shell covering the chest and a bit of the upper abdomen, known as the chest cuirass, it is approximately 47% as efficient as the tank respirator as regards ventilation The other is a shell covering the chest and abdomen, known as the chest-abdomen cuirass, it is 61% as efficient as the tank respirator[10] As in using the tank respirator, it is essential to estimate the desired ventilation and then be sure, by actual measurement, that it is being achieved This is even more important with the cuirass respirators than with the tank, because of their lesser efficiency This is the reason cuirass respirators are not advocated in the acute phase The efficiency of the respirator is an extremely important consideration, as not every device will adequately ventilate every patient However, the fit and comfort of the cuirass is equally important, for regardless of its ability to ventilate, if it is uncomfortable, the patient will not and cannot wear it It is best to have available both types so that individual fitting can be made to select the respirator most advantageous to a specific patient particular situation

Rocking beds have also been improved by increasing their range of inclination, simplification of their mechanical features has decreased the problem of maintenance Their ventilatory efficiency is close to that of the cuirass respirators, so the same principles of usage apply An occasional patient will have motion sickness, but fortunately such difficulty is rare The ventilatory efficiency of any respirator is not related to the degree of impairment of the respiratory muscles, it is related to the compliance and resistence of the respiratory system[11], therefore the cuirass respirator or rocking bed may give adequate ventilation to a patient with complete muscle paralysis or a vital capacity of zero There are many important advantages of these respirators over the tank They allow freedom of motion and positioning of the patient, which is desirable for preventing deformities They allow access to the patient by nurses, physical therapists, occupational therapists, and physicians The cuirass respirator further allows a patient to practice walking, to sit in a wheel chair, or to travel in an automobile, all of these activities are extremely helpful psychologically Pressure breathing devices are also available that attach to the cuirass pump and deliver pressure to the tracheostomy or to a pipe-stem type of mouth piece This allows even greater mobility of the patient for short periods of time

Glossopharyngeal breathing[12] has rapidly developed from its initial period as a curiosity into a very important substitute breathing technique that requires no mechanical equipment The patient forces air into his lungs, using his tongue as a pump, a series of tongue strokes, followed by passive expiration, provides adequate ventilation and enables patients with essentially no breathing ability to get out of a respirator for hours at a time This method of breathing allows patients who could barely breathe adequately for short periods when lying flat to get up into a wheel chair or automobile, or even to begin standing and walking It can increase their vital capacity from essentially zero to 50 or 60% of predicted normal or, in some cases, to the full predicted value This ability to take a deep breath periodically provides physiological lung and thoracic stretching and a fair cough Patients cannot use this method of breathing while asleep as it is not involuntary or automatic, but it becomes semiautomatic while patients are awake in that they do not have to concentrate on it or even think about it The length of time they can breathe by it varies considerably, and they can increase their endurance with practice The ability to breathe spontaneously for even a few minutes offers an important safety factor to the patient dependent upon mechanical equipment for every breath, the development of this technique is a great boost psychologically

The Extremities and Trunk—The developments described thus far have been designed to get patients as free of respiratory equipment as possible Another area of important development has been in restoring function to the extremities and trunk by treatment techniques, newer surgical procedures, functional bracing and prostheses For the past several years, a company in California has been experimenting with the development of prosthetic devices to provide motion for paralyzed upper extremities One of the most important contributions to this field is the handy-hook, patterned after that used in most upper extremity amputation prostheses and controlled by a shoulder harness cable housing The device is light and simple, it is especially effective since the patient with poliomyelitis retains normal sensation and joint movement The company has also developed several other devices to aid in elbow and shoulder flexion For some patients who have no functional muscle power of the shoulder, devices are attached to wheel chairs or to a functional lower extremity to activate the upper extremity, this development appears to offer tremendous possibilities in the rehabilitation of patients with severely paralyzed upper extremities

For many years the transfer of tendons to new insertions has been done with rather remarkable success This has recently been extended to the restoration of intrinsic musculature of the paralyzed hand, particularly of the first dorsal interosseus muscle A new field in transplanting motor power has been presented and is based on the concept that a muscle may be freed at both ends and shifted to a new location where it will be successful in reinforcing weak function[13] The most successful procedure so far has been in transferring a pectoralis major muscle into the arm to act as an elbow flexor In this procedure, transplantations can be done with considerable shifting of position, providing the nerve supply and blood supply are left intact

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There is increasing emphasis on functional splinting of the extremities, using rubber bands to assist motion For example, in the hand that has flexors but no extensors, an outrigger is made on a hand splint with attachments to the fingers to permit active flexion and passive extension In this way activity of the hand is increased and recovery is hastened The trend is to do earlier bracing in both the upper and lower extremities This has several advantages deformities are prevented, the motion that is present can then be used in a functional position, and weakened muscles are protected from overuse so that their recovery is hastened

DEVELOPMENT OF REGIONAL CENTERS AND HOME CARE

The increased incidence of poliomyelitis, the greatly reduced mortality, and the many advances in treatment techniques and equipment available all add up to the obvious need for experienced teams to care for poliomyelitic patients A few years ago the Medical Department of the National Foundation for Infantile Paralysis made a survey of the distribution of severely involved patients in respirators throughout the country They found that the patients in respirators were widely scattered, usually only one or two patients in one hospital They were receiving special nursing around the clock for months and years, and little, if any, attempt was being made to see if they could be removed from tank respirators The situation was poor medically, socially, and economically

The national foundation's solution to this problem was the development of nine regional respirator centers, strategically located throughout the United States and connected with teaching hospitals and research centers They were assigned the responsibility of providing the best of care, research into the pathological physiology, development of improved equipment and treatment techniques, and a source of education for related professional fields These centers have proved advantageous in many ways The grouping of patients has allowed teams of men to gain needed experience to improve present methods of treatment and develop new techniques The socialization of patients has increased their motivation and has given them confidence to try things formerly believed impossible It has greatly reduced the cost of care, saving an estimated $3 for each dollar spent The developments being made at the centers will carry over into other diseases and fields of medicine

Despite all the progress listed, there still remains a certain residual group of patients who will require mechanical respirators of one form or another for years to come Essentially, there is no need to commit patients to hospitals for the rest of their lives because of this It has become apparent that they can be successfully cared for at home on a mutually advantageous basis This is not easy to accomplish, but if all concerned are willing to make the effort, it can be done It requires careful staffing, considering all aspects of the patient's needs and environment Mechanical, social, nursing, and medical support must be provided The cost of such care is one-third to one-half that of hospitalization, and provides a far more favorable social environment and makes available needed hospital space for newer patients The parent, although in a respirator, can provide stability and guidance to the family The child can be returned to the loving care of the parents The severity of the case is no limitation, only the medically unstable patient cannot be safely cared for at home At the Rancho Los Amigos Respiratory Center, we have developed a home care department, there are at present close to 70 respirator patients receiving service from this department within the County of Los Angeles

SUMMARY

Several important advances have been made recently in the treatment of patients with paralytic poliomyelitis The mortality rate has been reduced by increased use and understanding of tracheotomy and mechanical respirators of various types, by improved treatment of medical complications such as pneumonitis and atelectasis with antibiotics, trypsin, nebulization, and mechanical coughing devices, and by the development of local professional teams in smaller communities There has been great improvement in techniques and devices for restoration of function, such as glossopharyngeal breathing, muscle transplants, functional bracing, and prostheses Nine regional respirator centers have been established throughout the United States by the National Foundation for Infantile Paralysis, with the specific assignment of providing evaluation, care, and rehabilitation of patients and providing related research and education Programs have been developed to send patients who must use respirators to their homes with adequate support to insure all of the advantages of the hospital, plus those inherent in the home situation

Rancho Los Amigos

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Multiple Births—In the births registered in the United States during the period 1933-1950, twins occurred in about one out of every 92 confinements Triplets occurred once in about 9 600 confinements and quadruplets once in about every 657,000 confinements The age of the mother has a considerable bearing on the chances of plural confinement. The relative frequency of multiple births is least among mothers under age 20 increases with advance in age to a maximum for mothers in their late 30 s, and then falls off toward the end of reproductive life For teen age mothers the chances that a confinement will result in twins or triplets are only six in 1 000 For those aged 35-39 years however plural births are almost three times as frequent The likelihood of a multiple birth also depends upon the race of the parents The chances that a nonwhite mother will have twins are 13 in 1 000 or one fourth greater than they are for white mothers Moreover, the disparity between the two groups is even larger for confinements yielding more than two babies Thus triplets are relatively 1¾ times as likely among nonwhite mothers as among the white and quadruplets are almost four times as likely —How Often Do Multiple Births Occur? *Statistical Bulletin Metropolitan Life Insurance Company* April, 1954

ADVANCES IN THE LABORATORY DIAGNOSIS OF POLIOMYELITIS

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The establishment of a definitive diagnosis by laboratory procedures in an illness produced by an infectious agent is desirable Whether or not such a diagnosis may be achieved is dependent on the availability of appropriate techniques In this instance availability has reference not only to the existence of diagnostic methods but also to the adaptability of the specific techniques to usage in routine diagnostic laboratories Thus, with reference to the problem at hand, the definitive diagnosis of poliomyelitis, it is to be noted that in a restricted sense laboratory methods for diagnosis have been available since 1909 when Landsteiner and Popper produced an illness associated with paralysis in monkeys on inoculation with material obtained from a patient with poliomyelitis However, with the primate as the only experimental animal, diagnostic assistance could not be given the clinician dealing with a suspected case of poliomyelitis

We will present here two developments in the field of poliomyelitis research as applied to the problem of diagnosis, both of which have minimized the role of the monkey One development is the outgrowth of our observation, reported in 1949,[1] that the poliomyelitis viruses could be propagated in cultures prepared with human tissues The other is the elaboration of techniques whereby representative strains of poliomyelitis virus have been adapted to rodents[2] It will be apparent that these technical advances have increased the availability of diagnostic procedures in the general sense, yet it is to be emphasized that these methods are still undergoing evaluation and simplification However, it appears that certain of the new techniques will prove adaptable to the requirements of the diagnostic laboratory and thus are of interest to the practicing physician We will confine our discussion to those procedures designed specifically to identify an infection with poliomyelitis virus during life We will not consider auxiliary laboratory tests (such as the spinal fluid examination) that do not yield a definitive diagnosis

Whereas from the clinical standpoint poliomyelitis is justifiably considered a single disease, from the etiological standpoint it is necessary to conceive of this entity as produced by three related but immunologically distinct viruses This concept, of fundamental import, was established by the collaborative efforts of the Committee on Typing of the National Foundation for Infantile Paralysis[3] The laboratory diagnosis of poliomyelitis depends on the isolation from the patient of one of the three types of virus or else on the demonstration of immunologic phenomena indicating its presence Virus isolation may be accomplished from the feces of the patient or, with less likelihood of success, from the pharyngeal secretions Immunologic evidence consists in the demonstration of the appearance or increase of specific antibody in significant amounts upon examination of acute and convalescent phase blood specimens The manner in which the new techniques may be applied to these ends will be considered

TISSUE CULTURE PROCEDURES

The poliomyelitis viruses will multiply in vitro in a variety of cell types of human or of monkey origin From the diagnostic standpoint, an important characteristic of these viruses in tissue culture is their cytopathogenicity or, in other words, their ability to destroy those cells in which they multiply That this destructive effect is specific is manifest by the fact that cell destruction is prevented by homotypic antibody In practice, employing suitable controls, the presence of poliomyelitis virus isolated in a culture may be recognized by direct microscopic observation of the cellular degenerative changes or else indirectly by recording reduction in metabolic activity of the affected cells The virus may then be identified as to type by combining it with appropriate antisera and observing the presence or the absence of cytopathic activity upon inoculation of the mixtures into a second set of cultures In a similar manner the neutralizing antibody content of blood from a patient may be assayed by determining the smallest amount of serum that will prevent cytopathic activity in vitro

The development of these techniques has been reviewed elsewhere[4] In brief, cultures of human or of monkey tissues are employed and are usually prepared by planting tissue fragments or cells on the wall of small test tubes that are incubated in a revolving drum or else in a stationary slanted position This type of culture wherein cells are grown on glass or on a plasma substrate has proved a more sensitive indicator of virus than have flask or "suspended cell" cultures The type of cell likewise affects the sensitivity of the system When available, human kidney tissue has given the best results in our laboratory[5], others are utilizing cultures of monkey kidney tissues as routine, and techniques for the preparation

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Read in the Symposium on Recent Advances in Poliomyelitis before the Joint Meeting of the Section on Experimental Medicine and Therapeutics and the Section on Internal Medicine at the 103rd Annual Meeting of the American Medical Association, San Francisco June 24 1954

This paper was discussed by Dr Edwin H Lennette, Berkeley, Calif

This study was supported in part by a grant from the National Foundation for Infantile Paralysis Inc

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of standardized cell suspensions have been developed[6] Syverton and Scherer[7] introduced the use of a stable strain of malignant human epithelial cells for in vitro poliomyelitis studies, they have demonstrated that these cells may be maintained in continuous culture in a central laboratory, and that subcultures may be distributed to diagnostic laboratories as needed For virus isolation studies, either cultures of kidney cells or cultures of HeLa cells appear to yield optimal results, such epithelial cells appear to be particularly refractory to certain "cytotoxic" substances that may be encountered in human feces If monkey tissues are utilized, as many as 2,000 cultures may be prepared from the kidneys of one animal

IN VITRO ISOLATION

Although the first report of the in vitro isolation and identification of poliomyelitis virus appeared only three years ago,[8] the technique is now in general use in research laboratories Fecal specimens or throat washings are prepared for inoculation by centrifugation and the addition of antibiotics to prevent bacterial and fungal growth The efficiency of the procedure will be illustrated by a few representative results In an extension of our studies, Kibrick and Enders[5] have isolated 136 strains of virus, a poliomyelitis virus was recovered from 98% of cases with paralytic disease Syverton, Scherer, and Elwood[7] have recently reported the isolation of 300 strains of virus utilizing HeLa cultures Melnick and co-workers,[6a] employing cultures of monkey kidney tissue, have recently described the isolation of 76 additional strains

The results of viral isolation studies in cases bearing a clinical label of "nonparalytic" poliomyelitis are of interest In a group of 84 such patients observed at the Children's Hospital, poliomyelitis virus was recovered from only 35, or 42%[6] There are two obvious explanations for this comparatively low recovery rate from "nonparalytic" cases First, the amount of virus excreted may bear some relationship to the severity of the clinical process, Ward and co-workers[9] have suggested that mild cases do excrete less virus A second explanation is that certain cases in this clinical category represent not poliomyelitis but illnesses produced by other, as yet poorly defined, infectious agents There is now ample evidence to support this view In various laboratories, the application of the tissue-culture method has resulted in isolation of unidentified viruses from patients with so-called nonparalytic poliomyelitis, these have been termed by Melnick[10] "orphan viruses," for we know little of the diseases they produce These viruses may be responsible in part for the syndrome of "aseptic meningitis"

IN VITRO DETECTION OF NEUTRALIZING ANTIBODY

Classically the diagnosis of a viral infection by serologic means has been based on the demonstration of neutralizing, complement-fixing, or hemagglutinin-inhibiting antibodies Practical methods for the detection of the first two types of poliomyelitis antibody are now available, although their clinical usefulness is not yet fully defined Inhibition of the in vitro cytopathic action of the poliomyelitis viruses provides one method of assay of neutralizing antibody Such antibody usually appears early in the disease, and may even be well developed at the time the patient is admitted To perform the test, appropriate serum dilutions are prepared and incubated with known amounts of virus, each virus-serum mixture is then inoculated into one or more cultures The cultures are observed after an appropriate period for evidence of specific degenerative changes High levels of the antibody for the responsible virus are a characteristic finding, on occasion there may be some increase in heterotypic antibody[6a] This method is now being applied on a limited scale for diagnostic work In our own hands, it has on occasion been useful For example, in a young patient with thoracic herpes zoster and pleocytosis, there was questionable involvement of the right leg, demonstration of a marked rise in type 1 poliomyelitis antibody titer indicated a concurrent infection with poliomyelitis virus

IN VIVO DEMONSTRATION OF NEUTRALIZING ANTIBODY

The recent adaptation of type 3 poliomyelitis virus to mice by Li and Habel[2b] and of type 1 virus to mice by Li and Schaeffer[2c] has made available rodent-adapted strains of all three types and has thus provided an alternative to tissue-culture methods for the assay of neutralizing antibody Li and Schaeffer[11] have noted a close correlation between the results of mouse and of tissue-culture neutralization tests and have demonstrated that the mouse neutralization method may be utilized to establish age-antibody distribution curves for all three types of virus in a population group Reports on applications of this new approach to the problem of diagnosis should shortly be forthcoming

DEMONSTRATION OF COMPLEMENT-FIXING ANTIBODY

In 1952, Svedmyr, Enders, and Holloway[12] described a complement fixation test for poliomyelitis employing antigens derived from concentrated tissue-culture fluids Although earlier a satisfactory antigen for type 2 virus had been prepared by Casals from infected mouse brain material, the development reported by Svedmyr made available antigens for all three types Various workers have now confirmed this observation Using strains of poliomyelitis virus that multiply in vitro in high titer (10^6 to 10^8 TC_{50} doses per milliliter, where TC_{50} = the dose in tissue cultures that induces infection in 50% of cultures), satisfactory tests have been obtained with crude

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fluids as removed from infected cultures Antigen production for large-scale diagnostic use is therefore feasible

In the performance of the complement fixation test by Svedmyr and co-workers, not infrequently cases of poliomyelitis exhibited heterotypic as well as homotypic antibodies These cross reactions are probably due to the presence of both type-specific and group-specific antigens in the poliomyelitis viruses To reduce such cross reactions Black and Melnick[13] modified the test by the use of minimal quantities of complement and of antigen In their study of 49 poliomyelitis cases yielding virus, a rise in homotypic antibody was observed to occur in 90% of the cases Furthermore, homotypic complement-fixing antibody was rarely demonstrable before seven days after onset of the disease and often increased after the third week In view of these findings it appears that some modification of the complement fixation test employing tissue-culture antigens will achieve general acceptance as a practical diagnostic procedure

COMMENT

During the past five years a variety of new approaches to the problem of the laboratory diagnosis of poliomyelitis have been developed These advances indicate that procedures applicable to the conditions of the diagnostic laboratory will be available in the future At present, the clinical diagnosis of nonparalytic poliomyelitis might be termed one of "guilt by association" If paralytic poliomyelitis is prevalent in a community, the patient with signs of meningeal irritation and pleocytosis is usually labelled a "nonparalytic" case rather than a case of "aseptic meningitis of unknown cause" In such instances, it should shortly be feasible to evaluate the role of the poliomyelitis viruses with the assistance of factual rather than of circumstantial evidence

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PRACTICAL AND THEORETICAL CONSIDERATIONS WITH REGARD TO VACCINATION IN POLIOMYELITIS

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Artificial immunization against poliomyelitis has been the target toward which research workers have been aiming for well over 40 years During this period a number of attempts at active immunization in man have been tried in this country, notably in 1935, when several thousand children were inoculated with suspensions of infected monkey cord in which the virus of poliomyelitis had been inactivated by formalin or other chemicals These tests were made during the poliomyelitis season, at a time when there was limited appreciation of the fact that there was more than one immunological type of poliomyelitis virus, and when methods for measuring the poliomyelitis antibody content of serum were crude and very expensive For this and other reasons it is not surprising that this "early trial" was unsatisfactory, although several thousand children had been inoculated before the unsatisfactory features came to light[1] The 1935 experiments were quickly terminated when certain accidents, which to this day have not been adequately explained, occurred, and this unfortunate circumstance seems to have set the clock back for at least 15 years in the progress of immunization against poliomyelitis

Today the goal before us is, as Sabin[2] has aptly said, to find a practical and safe process to produce artificially what nature does for 99 or 99 9% of the population, and to do this without incurring the 1 to 100 or 1 to 1,000 risk of paralysis that is the price paid for acquiring immunity to poliomyelitis naturally I might point out here that the problem differs in different parts of the world and that there are several approaches to it, but the main ones are only two passive immunization, by injecting specific antibodies, and active immunization, by injecting a substance that will induce specific antibodies in the vaccinated person

PASSIVE IMMUNIZATION

Dr W McD Hammon has said that a low level of circulating antibodies might be sufficient to confer some protection against paralytic poliomyelitis, and it was on this basis, together with regard for the protective effect of gamma globulin in measles and infectious hepatitis, that he and his collaborators carried out, in 1951 and 1952, a large-scale trial of gamma globulin as a prophylactic measure against poliomyelitis in more than 25,000 children during the epidemic seasons of those years The results and the indications for use of gamma globulin have been given in detail in Hammon's previous paper,[3] and in his part of this symposium (see this issue, page 21) They recorded no serious accidents and very few bad reactions, and indicated that gamma globulin in the dosage used appeared to afford protection against the paralytic disease over a period of two to five weeks On the basis of this 1951-1952 experience, and with the realization that gamma globulin was not a very efficient agent for the wholesale prophylaxis of poliomyelitis, the use of a rationed supply in specified situations was widespread in this country during the summer season of 1953 Two particular recommendations were

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This study was aided by grants from the National Foundation for Infantile Paralysis, Inc

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made that it be used in household and intimate contacts of clinically diagnosed cases, and that it be used within epidemic areas where the risk to the juvenile population was high[4]. The results of this 1953 experience in this country were reviewed early this year by a National Advisory Committee whose report has been recently published[5]. The committee's decisions may not be the last word, particularly as it was pointed out in this report that the large-scale use of gamma globulin in 1953 resulted from a widespread public demand, and its administration was not done on an experimental basis. Nevertheless, it was decided that the administration of gamma globulin to familial associates with poliomyelitis had had no significant influence on the severity of paralysis or other features of the subsequent cases that developed in the exposed families. The results of the mass use of gamma globulin, in certain epidemic areas and populations where it might have been expected to be effective, suffer from the fact that most of the gamma globulin inoculations were given too late to be expected to have much effect, and the data from this trial were obtained in situations that lacked suitably chosen controls. In any event the committee could not say that the so-called mass use produced no effect. At best, therefore, gamma globulin can be regarded as having, as Hammon originally claimed, only limited usefulness as a prophylactic measure for the paralytic form of poliomyelitis. Its use will certainly not be abandoned.

ACTIVE IMMUNIZATION WITH KILLED VIRUS

Whereas with passive immunization the susceptible child can expect only temporary protection, considerable expectation for a longer period of immunity might be placed on active immunization against poliomyelitis through the use of vaccines. The trend of research here has been directed toward the development of two different types of vaccines one containing inactivated or killed material obtained from each of the three antigenic types of viruses, and the other containing live but avirulent strains of virus. With the latter it might be possible to administer a virus that would produce a harmless though immunizing infection. As to the former type of vaccine, the killed material, to date experiments in animals and a significant number of tests in man have shown that such materials derived from all three types of poliomyelitis viruses have induced the formation of type-specific antibodies in both monkey and man, and, at least in the monkey, some postvaccinal resistance to infection with homologous challenged virus can be produced[6]. This has been a great step forward, carrying with it at long last the possibility that poliomyelitis vaccines may actually become available to the health officer and to practicing physicians in the not too distant future. But it is also clear that such experiments must now be placed on a quantitative rather than a qualitative basis in which the inoculation dose and the degree and duration of the antibody response, together with the fate of the person vaccinated as compared with suitable controls, will require careful measurement on a large-scale, long-term basis. Such an experiment as this is being carried out in the United States under the auspices of the National Foundation for Infantile Paralysis this year.

Before attempting to describe this experiment, it is important to list some of the developments that have come step by step in the long up-hill struggle to produce such an immunizing agent or agents, and have thus made "a human vaccine trial" possible. Among them has been the arduous task of separating the family of poliomyelitis viruses into three serotypes. Another is the development of knowledge of antibody patterns in various populations that has come to light recently. From a study of such antibody patterns one can deduce the "immunity status" of the population. These indicate that in some areas 95% of the local children reach "immunologic maturity" as far as all three types of poliomyelitis are concerned, by the age of 5 years, whereas in other places, such as this country, such "maturity" is not reached until the age of 15 or more. In the former population, vaccination of school children would not be indicated, in the latter, some type of artificial immunization is sorely needed.

But most important on the list of developments stands the demonstration in 1949, by Enders, Weller, and Robbins,[7] that poliomyelitis viruses not only multiply in nonnervous tissue cultures but also produce a characteristic cytopathogenic change by which the presence of virus can be readily recognized. This has eliminated in large measure the necessity of resorting to the expensive and complicated procedures involved in the use of monkeys, and has served as an invaluable source of virus propagated in a medium that presumably is not as dangerous an inoculum as is nervous tissue. Additional experimental observations have also made the outlook for artificial immunization against poliomyelitis in man more hopeful. Among them is the demonstration by Bodian[8] that the amount of antibody required to protect cynomolgus monkeys against paralytic infection experimentally acquired by the intramuscular or oral routes is much smaller than that needed to protect against infection by the direct intracerebral route.

On this basis, Salk and his associates, utilizing an extensive experience in their studies of formalinized vaccines against influenza, have turned to the inactivation of poliomyelitis virus by Formalin and have reported in detail the results of their first tests with "killed" tissue culture virus vaccines in human beings[9]. Much of the most recent work has not yet been published, but in one series of experiments[10] it appears that antibodies to all three immunologic types were induced by inoculation of small quantities of a trivalent vaccine It has been clear that the postinoculation antibody response was far greater in those children who had preexisting type-specific antibody to one or more types than in those who were without preexisting antibody It remains to be determined whether a course of inoculation covering one or more years will be advisable, and whether the use of adjuvants is indicated

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There are several requirements for an acceptable "killed" poliomyelitis virus vaccine Obviously it must first of all be safe, its production must be practicable, and it should produce immunity that one might hope would be lasting It should be remembered that the objective is not to vaccinate against poliomyelitis infections in general, but to vaccinate against paralytic poliomyelitis, a mild nonparalytic or inapparent infection can actually be a desirable event

To meet the first criterion, the vaccine must not produce paralytic poliomyelitis It must not be a potential source of another pathogenic agent, which might be more difficult to inactivate than poliomyelitis virus—as, for instance, hepatitis virus Furthermore, as the "vaccine" may contain some foreign protein, and as multiple and spaced inoculations will undoubtedly be necessary, the material must not give rise to anaphylactic reactions or organ damage that might be brought to light only on repeated inoculation This latter is more than a theoretical consideration, for reinoculation may be done not only after a few weeks, but after the passage of a year or more There is, however, no longer a need to speculate on potential side-effects that may result from the use this year of Dr Salk's vaccine The stage is now set for direct observation, and the preliminary verbal reports to date indicate a remarkably low incidence of anything that could be termed an untoward effect

It is all-important to determine whether the postvaccinal "immunity" of this type would be permanent or relatively short lived In other words, the duration of artificial immunity induced by a "killed" virus vaccine might conceivably be weak and short, it might be enhanced from time to time artificially, by booster inoculations, or naturally, by "booster infections," if the person vaccinated were periodically exposed to poliomyelitis viruses, but as yet no one really knows how long such artificial immunity may persist The point is that poliomyelitis is usually a more severe disease in adults than in young children, and it should be determined as soon as possible whether a course of active immunization with a "killed" virus would eliminate, or merely postpone, future infection If the infection is merely postponed, then immunization might even have to be repeated periodically, conceivably for the rest of a person's life! On the other hand, it may be that a minimal amount of immunity produced by a weak immunizing agent might be sufficient to give the person vaccinated just enough resistance to modify his subsequent poliomyelitis infection This would be desirable, provided the modifying effect was that of eliminating paralysis

An important feature of any trial of such material is that it would be better not to carry it out during the poliomyelitis season, and particularly during epidemics Observations within the past four years have indicated that inoculation with certain vaccines of various kinds during poliomyelitis epidemics may precipitate paralysis in an exposed person

ACTIVE IMMUNIZATION WITH LIVE VIRUS

Another possible approach to the task of active immunization, and one that, if successful, would perhaps simplify the problem of vaccination and eliminate some of the theoretical dangers, is using not a killed vaccine but a live avirulent virus, duplicating the mechanism of natural infection and following the lead established long ago by Jenner in the prevention of smallpox, and later followed by Rockefeller Foundation workers in the prevention of yellow fever The situation is triply complicated in poliomyelitis because strains of all three types of virus would have to be discovered or produced, each of which would have permanently lost its power to cause paralysis but would have retained its power to immunize

The observations of Koprowski and his associates[11] have pointed the way here His strain of type 2 poliomyelitis virus, which after passage through cotton rats lost much of its virulence on intracerebral injection in monkeys, produced antibodies in high titer after feeding a single dose to two groups of children Cabasso and his associates[12] used the same principle in adapting another type 2 poliomyelitis strain to chick embryos Another group of workers, Enders, Weller, and Robbins,[7] have reported that a type 1 strain of poliomyelitis virus after serial passage in tissue cultures lost most but not all of its capacity to produce paralysis in intracerebrally inoculated monkeys Studies subsequently carried on in at least two other laboratories have confirmed the fact that this tissue-culture attenuation has promise in giving rise to variant strains that ultimately might be used for human vaccination It would appear, however, that no series of completely avirulent strains of poliomyelitis virus is yet available for any large-scale trial in human beings

It is heartening that enough information has been collected on this problem of active immunization against poliomyelitis to warrant its extensive trial on human subjects But before making predictions a warning should be made, in spite of lay impressions gained from radio and newspaper publicity, there is no real or official "vaccine" against poliomyelitis yet A number of substances are being prepared in several laboratories, one of which is being tried to see whether it is going to be worthy of the name of vaccine The proof will not be at hand until hundreds of thousands of children have been inoculated and their progress followed to determine statistically over the years whether the age incidence of clinical or paralytic poliomyelitis is reduced in the groups of vaccinated subjects as compared with suitable control groups, and, if the incidence is reduced, for how long The answer will probably not be obtained this year, but a hopeful beginning has been made

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EVALUATION OF RED CROSS GAMMA GLOBULIN AS A PROPHYLACTIC AGENT FOR POLIOMYELITIS

5 REANALYSIS OF RESULTS BASED ON LABORATORY-CONFIRMED CASES

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In previous reports [1] we presented an analysis of the findings of a controlled field study [2] on the prevention of paralytic poliomyelitis by gamma globulin The diagnosis of the cases included in these earlier reports was based entirely on rigid clinical criteria previously outlined,[2a] *since no laboratory data were available at that time* The accuracy of such criteria has never been completely evaluated, because suitable laboratory tests have only recently become available, but errors in etiological diagnosis were to be expected even though only paralytic cases were included. In this paper we are presenting a reanalysis of results based exclusively on laboratory-confirmed cases We shall also make reference to the United States Public Health Service reports [3] concerning the general use of gamma globulin in 1953 as they relate to data from our controlled study

LABORATORY METHODS

Infection with poliomyelitis virus can be determined by either of two methods—isolation of virus or serologic response All tests for virus isolation in this study were made on specimens of feces, usually a pool of three specimens collected from the subject on three consecutive or nearly consecutive days These specimens were obtained as soon as possible after diagnosis Tests were made in tissue cultures of human uterine cells or monkey kidney cells, usually the latter When negative, the test was usually repeated after attempting to concentrate any virus present by ultracentrifugation Monkeys were also often used for the second test. Viruses isolated were identified by tissue culture neutralization tests against type-specific immune monkey serums [4] prepared for each of the three recognized types of poliomyelitis virus If the virus was not neutralized by one of these antiserums, it was tested against a pool of all three to eliminate the possibility that more than one type of virus was present in the person from whom the culture material had been obtained

Serologic tests of two types, neutralization and complement fixation, were performed All serums from one subject were always tested simultaneously, and all tests were quantitative in nature, beginning with a dilution of 1 4 and usually carried through 1 256 Neutralization tests were performed in roller tubes using suspensions of cells from trypsinized monkey kidneys Two tubes were used for each dilution and each type of virus Fourfold serum dilutions were used A dilution of each type of virus representing 100 ID_{50} (infective dose for 50% of tubes inoculated) for tissue cultures was used Complement fixation tests were carried out by the Svedmyr [5] modification of the Fulton and Dumbell drop technique Antigens were concentrated from fluid from tissue cultures [6] of each of the three types of virus by the method used by Svedmyr and co-workers, and the number of antigen units used was similar to that used by these workers [5] Twofold serum dilutions were used throughout *in the complement fixation tests*

INTERPRETATION

Isolation of poliomyelitis virus was accepted as diagnostic In the absence of virus isolation, a fourfold or greater rise in the neutralization test was accepted unless complement fixing antibodies for that type of virus remained at a level below 1 4 A complement fixation change alone was accepted only when a neutralization test was not done and when at least a fourfold change in titer occurred for only one virus type A series of serums remaining negative for complement fixing antibody was considered as strong evidence against current poliomyelitis infection The interpretation of the complement fixation test will be discussed in a separate paper

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[3] Evaluation of Gamma Globulin in Prophylaxis of Paralytic Poliomyelitis in 1953 Summary of the Report of the National Advisory Committee for Evaluation of Gamma Globulin J A M A **154** 1086-1090 (March 27) 1954 Gamma Globulin in the Prophylaxis of Poliomyelitis Public Health Monograph no 20 Public Health Service Department of Health Education and Welfare 1954

[4] Type-specific immune monkey serums were obtained from Dr H A Wenner Medical School University of Kansas Kansas City

[5] Svedmyr A Enders J F., and Holloway A. Complement Fixation with the Three Types of Poliomyelitis Virus Propagated in Tissue Culture Am. J Hyg. 57 60-70 (Jan) 1953

[6] Crude virus suspension for concentration was obtained from Dr William Wood Connaught Medical Research Laboratories University of Toronto Canada.

TYPES OF VIRUS RESPONSIBLE FOR EPIDEMICS

Poliomyelitis viruses have been isolated from 245 of the patients and contacts in the epidemics included in the Utah, Texas, and Iowa studies of 1951 and 1952 Table 1 presents these isolations by area and by type of virus It will be noted that all three types of poliomyelitis virus were represented in a proportion reasonably consistent with the recognized occurrence of these types in the United States in the last few years—89% type 1 and few of the other two types In addition, untypable and as yet unidentified viruses were isolated in 16 instances

TABLE 1—*Virus Isolations from Stools in Three Epidemic Areas*

Area	No of Patients Tested	Poliomyelitis Virus Type 1	Type 2	Type 3	Total No	Total %	Other Virus Agents	Total Virus Isolations No	%
Utah	96	26	3	0	29	30 2	2	31	32 2
Texas	136	66	13	12	91	66 9	11	102	75
Iowa Nebraska	163	125	0	0	125	76 7	3	128	78 5
Total	395	217	16	12	245	62	16	261	66 1
Distribution of poliomyelitis viruses %		88 6	6 5	4 9	100				

Patients in whom clinically diagnosed poliomyelitis developed four days through eight weeks after injection with gamma globulin or gelatin were found to be infected with the types and kinds of viruses shown in table 2 Comparative data on patients of the same age who did not receive injections are included These data show that all proved cases of poliomyelitis developing in those receiving gamma globulin were due to type 1 virus, the type predominant in all areas Cases of paralytic poliomyelitis that gamma globulin failed to prevent were not due to the types of poliomyelitis virus associated less often with clinical disease Also, it can be observed that poliomyelitis virus was isolated less often from those patients who had received gamma globulin than from those who had not and that viruses not identified as poliomyelitis were isolated oftener from the former group The greater frequency of isolation of poliomyelitis virus from uninoculated patients possibly reflects the under-reporting of the disease and consequent greater average severity of those cases that are reported, as pointed out in a previous report[1b] This elimination of persons with mild illness from those brought to our attention would tend to decrease the number of diagnostic errors and thus increase the proportion of patients from whom virus could be isolated

LABORATORY CONFIRMATION OF DIAGNOSES

Isolation of virus from feces, quantitative neutralization tests, and complement fixation tests on serial serum specimens, as described above, were used for confirmation of the presence of poliomyelitis When, occasionally, a diagnosis could not be definitely confirmed on the basis of available specimens from the patient, virus isolation from one or more sibling contacts was accepted as adequate evidence of the cause of disease A very serious endeavor had been made to obtain a series of suitable specimens both from each patient and from his sibling contacts, but this did not always meet with complete success At the time of collection of specimens the type of inoculum received by the patient was unknown, so it is presumed that failures to obtain specimens are randomly distributed between patients receiving the two types of inoculum Every case without adequate laboratory tests or specimens, except those in which the patient died or infection was proved in a sibling, has, therefore, been excluded from consideration In the significant time interval (four days through eight weeks after injection) only three such cases were encountered, one in the gamma globulin group and two in the gelatin control group

After careful review of the laboratory data, 10 cases formerly included among the gamma globulin group and 13 from the group given gelatin have now been omitted from this study Those omitted will be considered briefly, except one in the former group and two in the latter that had their onset in extremely early or late time periods As mentioned above, during the period of greatest importance in this study (four days through eight weeks after injection) one case was excluded from the gamma globulin group and two from the gelatin group because of the lack of suitable specimens for laboratory testing There remain for consideration among the excluded cases in the significant time period eight in the gamma globulin group and nine in the gelatin group A brief review of pertinent findings for these is presented in table 3 It will be noted that the severity was minimal (muscle score 5 or less, 0 9% total possible muscle involvement) in all the patients given gamma globulin and in five of those receiving gelatin In the latter group one case was severe, two included moderate involvement, and one was mild In the patient with the severest involvement (case 9) tests on feces yielded no virus, neutralization tests on three serum specimens between the 8th and 59th day after onset showed no antibody rises, and no change occurred in titers of these three serums to complement fixing antigens of the three poliomyelitis virus types The patient in case 11, with moderate involvement, yielded a virus from the feces that was not typable as poliomyelitis, an untypable virus was also obtained from one sibling and no virus from two other siblings Two serum specimens collected from this patient 6 and 23 days after onset showed no rises in neutralizing antibody titers but showed a decreasing titer by complement fixation with two types of poliomyelitis virus We have encountered this apparent, nonspecific, or broad complement fixation response often in patients infected with viruses nontypable as poliomyelitis and without poliomyelitis-neutralizing antibody response, and it has occasionally been observed in patients from whom no virus was isolated We therefore do not con-

TABLE 2—*Virus Isolations from Patients with Clinically Diagnosed Poliomyelitis**

Inoculum		Poliomyelitis Virus Type 1	Type 2	Type 3	Total	Other Virus	No Virus Isolated	Total
Gamma globulin	No	13	0	0	13	3	12	28
	%	46 5	0	0	46 5	10 7	42 8	100
Gelatin	No	39	3	3	45	3	21	69
	%	56 5	4 4	4 4	65 3	4 4	30 4	100
None	No	43	3	2	48	4	14	66
	%	65 2	4 6	3	72 8	6 1	21.2	100
Total gelatin and not inoculated	No	82	6	5	93	7	35	135
	%	60 7	4 44	3 7	68 8	5 18	25 9	100

* Poliomyelitis like clinical syndrome involving the central nervous system with onset four days through eight weeks after inoculation with gamma globulin or gelatin, or during a similar interval after midclinic day if not inoculated

sider a complement fixation change diagnostic unless the change is for only one type of virus Two specimens of serum collected about one month apart from one sibling, age 3, of the patient in case 11 contained no neutralizing antibody to any of the three poliomyelitis virus types No other serologic tests were performed on this group of siblings In the other case of moderate severity, case 10, there was no detectable virus in the stool and none was obtained from four child siblings nor from the two parents No neutralizing antibody increases were observed between two specimens of serum taken 4 and 29 days after onset, but by complement fixation test there was a fall in titer against two antigen types Two blood serums collected from one sibling of the patient in case 10 showed a neutralizing antibody rise of questionable significance to one type of virus but no detectable complement fixation antibody in either specimen for any of the three virus types Based on such findings, this group of cases was excluded as poliomyelitis virus infections

TABLE 3 —*Cases of Clinically Diagnosed Poliomyelitis Not Confirmed by Laboratory Studies Occurring Four Days Through Eight Weeks After Injection of Gamma Globulin or Gelatin*

						Laboratory Studies					
Inoculum	Case No	Age of Patient	Muscle Score [1]	Onset Interval Days *	Cerebrospinal Fluid	Virus Isolated from Feces	Serum Specimens No	Serum Interval Days †	Neutralization Test	Complement Fixation Test	Other Family Member
Gamma globulin	1	6	3.95	15	No test	0	3	8-64	No rise	No change	No serologic change 1 sibling
	2	3	3	18	0	Other ‡	3	1-57	No rise	No change	Other virus no neut rise 1 sibling
	3 §	8	2.5	47	+	0	3	—3-58	No rise	No change	No virus no serologic change 3 siblings
	4	6	1	36	No test	0	3	7-60	No rise	No change	No virus no serologic change 1 sibling
	5	11	1	13	No test	Other	3	5-60	No rise	Rise 3 types	No siblings
	6	1	0	44	No test	0	0				No siblings
	7	9	0	7	No test	0	3	2-60	No rise	No change	No siblings
	8	8	0	7	No test	0	3	8-60	No rise	No change	No siblings
Gelatin	9	4	15.4	46	+	0	3	8-59	No rise	No change	No siblings
	10	4	62.3	6	+	0	2	4-29	No rise	Fall 2 types	No virus 4 siblings 2 parents ± neut rise no CF antibody 1 sibling
	11	5	38.75	12	+	Other	2	6-23	No rise	Fall 2 types	No virus 2 siblings other virus 1 sibling no neut antibody 1 sibling
	12	3	13.5	6	+	0	3	2-63	No rise	No change	No virus ± neut change no CF antibody 1 sibling
	13	5	5	9	±	0	3	0-60	No rise	No change	No virus no serologic change 1 sibling
	14	4	4.75	20	No test	Other	3	4-70	± rise type 1	0 type 1 no change others	No siblings
	15	5	3.5	44	No test	0	3	11-55	No rise	No change	No siblings
	16	3	2.5	13	+	Other	3	4-64	No rise	Change 3 types	No siblings
	17 §	5	0	42	+	0	3	2-64	No rise	Change 3 types	No virus no serologic change 3 siblings

* Interval in days from clinic injection to onset of illness

† Interval in days from onset to collection of first and last specimens

‡ Virus not typable as one of the three poliomyelitis virus types

§ The patients in cases 3 and 17 were siblings one of whom received gelatin and the other gamma globulin The onset in case 3 was three days after the patient's blood had been examined as a contact of the patient in case 17 No virus was isolated from that blood specimen

ANALYSES BASED ON LABORATORY-CONFIRMED CASES

In table 4 data on laboratory-confirmed, paralytic cases of poliomyelitis are compared with the results based on clinical diagnoses that were previously published Several changes can be noted Some protection during the first week (latter part of the incubation period) now appears more probable, protection during the next four weeks, highly significant before, is even greater, and protection in the period six through eight weeks after injection of antibody also appears greater, although the data on this time interval as an isolated group still lack significance, owing to small numbers The likelihood that protection of a waning degree does persist through this period is increased by the fact that in each of these three weeks the difference is in the same direction The cases occurring in the sixth through the eighth week by single weeks are sixth week, one in the gamma globulin and three in the gelatin group, seventh week, one and four, and eighth week, one and two, respectively Further indication of the effect of omitting unconfirmed cases is seen in the percentage of cases occurring from the fourth day after injection through the eighth week Cases of poliomyelitis occurring in those who received gamma globulin now represent only 19 7% of the total in the two injected groups, while they represented 25 6% in the previous, less reliable data

POSSIBLE CAUSE OF EXCLUDED CASES

The total exclusions made in the gamma globulin group in the four-days-through-eight-weeks period represent an elimination of 9 out of 22, or 41%, of cases diagnosed on a clinical basis as poliomyelitis, and in the gelatin group 11 out of 64, or 17 2% Despite this proportional difference, an approximately equal number (9 and 11, respectively) was eliminated from each group All these findings suggest that agents other than the recognized poliomyelitis viruses acted in these areas to produce a clinical syndrome that generally resembled mild or, possibly, even severe paralytic poliomyelitis Such cases do not appear to have been prevented by gamma globulin

Seven unidentified viral agents were isolated from the patients whose cases were excluded and their siblings (table 3) These have been tested against all types and combinations of poliomyelitis antiserum as well as against gamma globulin in dilutions above those toxic to tissue cultures No protective effect could be demonstrated against any From uninoculated children who had laboratory-unconfirmed but clinically diagnosed paralytic cases and from patients from all groups, who had clinically diagnosed, nonparalytic cases that were not confirmed by laboratory tests, eight similar viruses not typable as poliomyelitis were isolated Thus, 15 out of the total 16 unidentified strains of virus found in the whole study were isolated from patients with laboratory-unconfirmed but clinically diagnosed cases The remaining unidentified virus was isolated from a patient with type 1 poliomyelitis infection that was adequately confirmed by serologic tests These findings certainly suggest that one or more agents other than the recognized poliomyelitis viruses were active in these areas, producing a syndrome resembling paralytic and nonparalytic poliomyelitis These agents were not significantly affected by gamma globulin in the amount used

TABLE 4 —*Cases of Paralytic Poliomyelitis by Type of Inoculum and by Time of Onset After Inoculation*

	Laboratory Confirmed Cases				Clinically Diagnosed Cases		
			Gamma Globulin			Gamma Globulin	
Interval After Inoculation	Total	Gelatin, No	No	%	Gelatin, No	No	%
1 3 days	7	4	3	42 8	4	4	50
4 7 days	16	10	6	37 5	12	8	40
2nd week	22	20	2	10 5	24	8	15 2
3rd week	8	7	1		8	3	
4th week	5	4	1		4	1	
5th week	3	3	0		3	0	
6-8 weeks	12	9	3	25	13	7	35
9-13 weeks	8	3	5	62 5	5	5	50
Total	81	60	21	25 9	73	31	29.8
Total incidence, 4 days 8 weeks	66	53	13	19 7	64	22	25 6

How many of the agents isolated may be identical has not been determined Those tested to date do not have the properties associated with the Coxsackie viruses, but one of two tested in monkeys produced distinct pathological changes, observed in sections of the spinal cord and nerve roots taken at 9 and 30 days after injection

USE OF GAMMA GLOBULIN

Prophylaxis —A number of references have been made by others to the proportion of persons offered protection by gamma globulin We have hesitated to make such a statement until more accurate diagnoses could be made, and we feel strongly that any such figure that is presented should be accompanied by a standard error, so that a concept of the confidence range is also presented Unfortunately, no such confidence level can be calculated with any accuracy using the data available, since we cannot determine the size of the susceptible, exposed population involved in the experiment This group was very large, however, certainly including several thousand children, so the figures have reasonable stability We can only say now that in the experimental group, (1) with the potency and dose of antibody used, (2) when infection was due to poliomyelitis virus and not another agent or agents producing a similar clinical syndrome, and (3) when infection was acquired at such a time that the onset of disease occurred more than three days after receiving gamma globulin and not more than eight weeks after, 75 5% of those treated appear to have been protected from the development of paralytic disease When the onset of disease occurred from one week through the fifth week after injection of gamma globulin and all other factors were unchanged, then 88% appear to have been protected

If exposure and infection could be planned and timed to occur at will, gamma globulin would represent a reasonable agent for prophylaxis As we have pointed out before,[7] however, the time of infection is so unpredictable, the immune status of individual persons in the population so completely unknown, and the ratio of children needing additional resistance to avoid the development of clinical disease so small (1 100 or 1 1,000) that the use of this agent would not ordinarily have been considered if anything else had been available If the disease were other than poliomyelitis, which has such great emotional association, gamma globulin would certainly never be offered for any widespread use This does not mean that gamma globulin prophylaxis has no practical application in poliomyelitis If further research studies with suitable controls could be carried out the most advantageous application could probably be determined Without such studies, application is largely done by guessing, with sharp differences of individual opinion

Modification —One of the most debated fields of application depends to some degree on the effectiveness of the agent in modifying disease when it fails to protect completely Also of particular importance is its modifying or preventive action when it is given during the week before onset of disease A new analysis has been made of data related to these problems, based only on the laboratory-confirmed cases (table 5) Unfortunately for analysis, the number of confirmed cases occurring in the group that received gamma globulin is very small, thus, significance of differences can be attained only if the differences are very large In this analysis nonparalytic cases, confirmed by virology laboratory tests, are included for the first time They had been excluded from the analyses previously reported because of the large proportion of diagnostic errors expected These laboratory-confirmed, nonparalytic cases now are placed at the lower end of the severity scale and the fatal cases at the other extreme This method of grading paralysis was originally developed for this study with the assistance of Dr Jessie Wright [2b] and simplified slightly for application in the 1953 studies of the Public Health Service [3] All scores are based on the final, 60 day muscle examination This examination was the last of a series of three complete muscle gradings and many less complete examinations that were all made and recorded by members of the research team Those included as paralytic, with 0 muscle score, had been observed to have significant paralysis at the time of one or more earlier examinations The score can be transformed to a percentage muscle involvement by dividing by 560, the highest possible score The muscle scores were arbitrarily grouped into four broad classifications of severity for comparative purposes in table 5, because numbers are small, these are regrouped into two for calculating percentages The first group contains the mildest cases, from nonparalytic cases to those with muscle scores up to 19 (3 4% total involvement), and the second group includes all severer cases, including the fatal cases It will be noted that cases occurring during the first through the sixth week after inoculation were milder among those given gamma globulin than among those given gelatin The difference observed for this period of time is significant

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[7] Hammon W McD Passive Immunization Against Poliomyelitis with Especial Consideration of the Effectiveness of Gamma Globulin, Bull New York Acad Med **29** 930-942 (Dec) 1953, Limitations in the Use of Gamma Globulin in Poliomyelitis, Am J M Sc **226** 125-130 (Aug) 1953 Hammon [1b]

Although the number of cases occurring during the first week is quite small, the direction of observed difference suggests that, as in measles and probably hepatitis, if prophylaxis in the late incubation period fails to prevent, it may modify If one eliminates all cases with no residual paralysis at the time of the 60 day examination (this had to be done in the United States Public Health Service study in 1953,[3] since no reliable examinations were included in that study to detect paralysis at any earlier time), modification is obscured almost completely but protection is more obvious In the total time period covered by the study 8 cases without residual paralysis may thus be eliminated from the gamma globulin group and 10 from the gelatin group Six and one, respectively, are from the first week Eliminating these cases without residual paralysis leaves 5 cases in the gamma globulin group and 13 in the gelatin group with onset in the first week after injection This difference in incidence of disease with residual paralysis, though proportionately large (61% reduction) and important if confirmed, cannot be considered significant, however, since the number of observations is small (P=0 07) If confirmed, this difference would represent protection against residual paralytic poliomyelitis by gamma globulin given during the last week of the incubation period If the cases without residual paralysis occurring during the following five weeks are discarded, the remaining differences of severity still suggest that modification may occur if prevention fails

Family Contacts —The application of this information to use in family contact groups is obvious Many statements have been quoted from authoritative sources by the lay press and have appeared repeatedly in health education publications to the effect that gamma globulin offers no protection if given after infection, i e , during any phase of the incubation period It has been stated that in the controlled experiments an effect was demonstrated only when gamma globulin was given before infection occurred For this reason, it is explained, gamma globulin can be of no use when administered to family contacts, since most of these persons are exposed and in the incubation period before injection Data in our previous reports, the only experimental or controlled observations on this problem to date, gave no such information The more accurate data based only on laboratory-confirmed cases lend support to the hypothesis that antibody given during the incubation period has a beneficial effect that can be interpreted either as modification or as prevention, depending on the type of examination and threshold used to determine the existence of muscle weakness Therefore, unless better evidence has become available, use of gamma globulin after recognized exposure among family contacts or any other contacts of known cases is supported by suggestive, though admittedly inconclusive, experimental data At least, there is no basis for concluding that gamma globulin will not protect under such conditions

In this reanalysis of experimental evidence based on laboratory-confirmed cases, a number of rather important differences appear between these data and impressions gained by many from the series of United States Public Health Service reports on general usage of gamma globulin in 1953 Since the complete report has finally been published and one of the authors of this paper was a member of the committee asked to revise and endorse the report, comment might be expected The reader is referred principally to the original data[3] to form his own conclusions All the reasons why controls are necessary in order to draw any valid conclusions that we stated in our description of planning for the trials of 1951 and 1952 were adequately demonstrated in the lack of controls in the 1953 study Conclusions from mass prophylaxis were that no effect could be demonstrated This is not surprising, since there was no constant value with which to compare the observed results It was carefully stated in the report however, that there was also no evidence to show

TABLE 5 —*Severity Distribution of Laboratory-Confirmed Cases of Poliomyelitis by Type of Inoculum and by Time of Onset After Inoculation*

		Gamma Globulin					Gelatin				
Time Interval		N P-0*	1 19	20-99	100+	Total	N.P-0	1 19	20-99	100+	Total
1st week	No	6	4	1	0	11	1	10	2	1	14
	%	91		9			78 6		21 4		
2nd-6th week	No	2	2	2	1	7	7	5	17	9	38
	%	57.2		42 8			81.6		68 4		
7th 13th week	No	0	2	2	3	7	2	2	5	1	10
	%	28 6		71 4			40		60		
Total	No	8	8	5	4	25	10	17	24	11	62
	%	64		36			43.5		56.5		
Total, 1st-6th week	No	8	6	3	1	18	8	15	19	10	52
	%	77.8		22.2			44.2		[illegible]		

* N.P = nonparalytic All numbers represent muscle scores Fatal cases are included in the 100+ group

that gamma globulin did not have an effect These not-too-revealing results had been anticipated by the committee before the study was made

The report on family contact use, although attempting to present comparative data, in our opinion lacked such data The inconclusive results obtained have been interpreted by many as conclusive Comparative rates on which conclusions might be based would require data on the number of cases occurring among a known number of family contacts who did not receive gamma globulin and among a known number of family contacts who did receive gamma globulin, ages and other factors in the two groups being reasonably similar Rates could then be compared for families in which the agent was and was not used This was not done Although the number of reported cases in each group was available, the two exposed populations from which the cases were derived were completely unknown, thus no rates for comparison could be calculated Instead, a review of past experience in epidemic areas dating back to 1905 in Sweden and 1916 in New York, when age distributions and immunity status of persons in a family were entirely different from those found today, and of more recent experience that was almost entirely from very large urban epidemics was made, and from this it was pointed out that from 4 6% to 17 4% of all subsequent cases could be expected to occur 13 to 30 days after the onset of a family index case This range for the normal expectancy would permit a 278% increase from the lower figure or a 74% reduction from the upper The report reads, “With such variability it was evident that the possible preventive effect of gamma globulin would be observable in this type of study only if (1) a very large series were studied, (2) gamma globulin were given very consistently to most family contacts, and (3) gamma globulin possessed a marked preventive effect ” The series of cases was reduced by one type of elimination after another to a total of 415 cases The patients in 257 (62%) of these did not receive gamma globulin at all or received it on the day of or the day after onset of poliomyelitis, when it would not be expected to have any effect However, because there was no way to allocate cases by family or to separate these families completely, the 62% of essentially uninjected cases had to be included with the 38% in which the patients received the injection to determine what effect the agent had had A total of only 30 cases occurred 13 to 30 days after the onset of the index case, and the patients in 11 of these had not been inoculated This small, mixed group, then, was the crucial one for comparison with past experience when gamma globulin had not been used at all These 30 cases, occurring in both injected and uninjected patients, were 6 6% of the total number of cases occurring after an index case This percentage fell within the wide limits of 4 6% to 17 4% considered normal It will be observed that two of three essential criteria for a successful study that had been set down in advance had not been fulfilled—“a very large series” and “gamma globulin given very consistently to most family contacts ’ The report draws the following conclusions from this aspect of the study “Thus the availability in 1953 of gamma globulin on a national basis for administration to household associates did not induce a discernible deviation in the classical epidemiological pattern of familial aggregation of the disease ” This has been interpreted in many statements elsewhere as proof that incidence of disease was not affected by gamma globulin usage in family contacts

Further highly suggestive evidence of the effectiveness of gamma globulin is presented in a report of its use in a number of epidemic areas in Mexico during the summer of 1953 [8] In these instances the areas selected, the time of starting inoculations, and the age groups given gamma globulin were more satisfactory than in most of the United States experience of the same year The results support the effectiveness of use of the agent in suitable circumstances in mass immunization and also suggest its effectiveness in family contacts Evidence for both is far from adequate but tends to confirm the earlier, controlled tests

We prefer to base conclusions about the effectiveness of gamma globulin in any application on experimental observations with suitable controls, rather than on the type of data available from the 1953 studies described There appears to be definite evidence from the controlled studies that gamma globulin protects when given under suitable circumstances It is regrettable that these circumstances cannot be more completely described, but, the experiment was designed to answer one basic question “Will this amount of antibody prevent poliomyelitis under any conditions of natural exposure?” and not, “How can gamma globulin be used most effectively in controlling the disease?” No experiment has been performed yet to answer this second question The experimental evidence suggests, nevertheless, that protection derived from the amount of antibody given in the field tests began to have a noticeable effect late in the incubation period, was most effective when given at about the time of exposure or one week before, and continued with slowly diminishing effect for six to eight weeks This information has some use in planning how to use the agent in disease prevention

EFFECT OF GAMMA GLOBULIN ON INAPPARENT INFECTION

There has been considerable interest of a practical nature in the possible effect of gamma globulin on the incidence of inapparent infection and the development of immunity To obtain information about this has required a great deal of laboratory work The results of this phase of the study will be presented in detail in subsequent reports No significant difference in the proportion of persons excreting virus can be detected among persons of the same age group who were contacts of patients with confirmed poliomyelitis, whether these contacts had received gamma globulin, gelatin, or no injection prior to infection The same holds true for the proportion of significant rises in neutralizing antibody titers in a series of blood specimens collected from such contacts during an appropriate time period However, when all aspects of the laboratory data are studied, including results of complement fixation tests, the height of titers to both serologic tests, the time required to reach high titers, the final percentage of infections confirmed as poliomyelitis by combining the results of all tests, and the direction of small differences below the order of significance, one cannot state with assurance that this level of injected antibody has shown no effect on infection A slight interference has probably occurred, but the degree is negligible with administration of this amount of gamma globulin This does not mean, however, that higher levels of antibody would be ineffective We are inclined to interpret the slight effect observed at such an extremely low level as suggesting that a more important effect will be observed in persons with higher antibody levels, whether these are acquired from larger doses of antibody passively transferred or produced by vaccination

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[8] Calderon C and others Results Obtained with Gamma Globulin in the Prevention of Poliomyelitis in Mexico read before the United States Mexico Border Public Health Association 12th Annual Meeting, Albuquerque, N Mex, April 7-9 1954

SUMMARY

Appropriate specimens from patients with clinically diagnosed cases of poliomyelitis from the controlled field tests of gamma globulin made in Utah, Texas, and Iowa and Nebraska in 1951 and 1952 have been tested in the virology laboratory to determine which cases were or were not caused by one of the recognized types of poliomyelitis virus A new analysis of the data on such confirmed cases was done to determine the effectiveness of gamma globulin in the prevention of poliomyelitis Infections with all three types of poliomyelitis virus occurred in the area under study Clinically diagnosed cases developing in those who received gamma globulin were due either to type 1 poliomyelitis or to agents other than poliomyelitis virus During the period of time when gamma globulin appears to have shown some effect in preventing paralytic disease, an approximately equal number of cases in the groups receiving gamma globulin and gelatin could not be confirmed as poliomyelitis by laboratory tests These unconfirmed cases represented 41% of the gamma globulin group and 17% of the gelatin control group Viral agents isolated from these excluded cases were unaffected by type-specific poliomyelitis antiserums, a mixture of these serums, or gamma globulin Of 16 such agents isolated, 15 came from patients whose disease could not be shown to be due to poliomyelitis virus or from the sibling contacts of those patients The exclusion of disease not attributable to poliomyelitis virus from the study shows gamma globulin to be slightly more effective against poliomyelitis than it appeared formerly Protection and/or modification to the point of eliminating detectable paralytic involvement by the time of the 60 day muscle examination probably occurred even in those receiving gamma globulin during the week before onset, protection was most conspicuous during the next four weeks after injection and appears to have lasted well into the period of six through eight weeks after injection Protection appears to have been a combination of prevention and modification of disease These data offer very suggestive, although not conclusive, evidence in support of the use of gamma globulin after exposure has occurred Laboratory tests on contacts of patients with confirmed cases of poliomyelitis indicate that the amount of antibody given the patients in this study did not interfere with infection or the development of active immunity to an important degree

THE ANESTHESIOLOGIST, THE POLIOMYELITIS TEAM, AND THE RESPIRATOR

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and
William E Simpson Jr , M D , Reno, Nev

The practicing anesthesiologist is not a research scientist in the strict sense, yet by nature of his training and daily experience he qualifies as a clinical cardiorespiratory physiologist. He is alert to problems in vital medicine relating to deficiencies of pulmonary ventilation and inadequacies of the oxygen transport system, having faced such problems on many occasions If he has been diligent in his work, has established good relations with the physicians of his area, and has earned their faith in his judgment and respect for his capabilities, he then finds opportunities extended for even broader service to the profession and to his community

In what manner can the anesthesiologist render a greater professional contribution to his community than in furnishing the leadership necessary to the organization and continued function of a poliomyelitis team? This question came forcibly to us when at the beginning of a recent poliomyelitis season there were two near fatalities from bulbospinal poliomyelitis in our hospital Indecision in the early management of these cases impressed us with the need for medical teamwork if future jeopardy was to be minimized Consequently, a meeting of hospital and professional personnel was called for the express purpose of forming a poliomyelitis team

PLANNING THE TEAM

Because of special training in the realm of cardiorespiratory physiology, the anesthesiologist was unanimously approved for primary responsibility in the care of respirator cases It was established that he would be notified of all poliomyelitis patients entering the hospital, and that he would make the decision as to the necessity for tracheotomy and/or respirator care Such decisions would be made after careful and thorough examination of each individual case, close harmony and consultation being maintained between the anesthesiologist and the pediatrician, internist, or general practitioner, as the case might be Care while in the respirator was planned on a similarly cooperative basis liaison being maintained between the various physicians on a

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From the Department of Anesthesiology Washoe Medical Center

Read before the Section on Anesthesiology at the 103rd Annual Meeting of the American Medical Association San Francisco June 22, 1954 given case by carefully recorded progress notes and repeated consultation either in person or by telephone An immediate meeting of local nurses was called, and the facts were placed squarely before them concerning the vital need for nurses trained in the care of all types of poliomyelitis Emphasis was placed on the fact that without the best nursing care life is impossible for a patient with a tracheotomy or a patient in a respirator Volunteers for poliomyelitis nursing were given on-the-job training In addition, classes were held for groups of three to six nurses, the one patient in a respirator then in the hospital being used for quiet but effective demonstration Physicians also were in need of a review of poliomyelitis in its many aspects To fill this gap several physicians, including the anesthesiologist, made trips to large centers in order to observe treatment methods All possible information was gathered from the chief of staff, assistants, residents, interns, nurses, physical therapists, and engineers The accumulation of ideas from all sources was then systematically pooled into the working knowledge of the poliomyelitis team

Already the observation had been made that throughout the country death rates were uniformly high in the group of patients exhibiting severe respiratory or bulbar involvement This was found to be true even where good physicians, good nurses, and good respirators were available A prominent difference was noted, however, in the mortality reports from certain large centers [1a], close study revealed that they had not only intensified certain therapeutic measures ("elective" tracheotomy, early respirator care, and careful daily laboratory control of blood chemistries), but that they had also developed special equipment of material aid in evaluating and treating patients with respiratory involvement Two devices were most notable (1) a special ventilation meter adapted to use on communicable disease wards and (2) an intermittent positive pressure respirator attachment [1b] The logic behind the entire program was of such soundness and the mortality figures, as compared with other centers, so low as to convince us that we should emulate their methods Equipment needs were rapidly satisfied, thereby bringing to an end the preparedness phase of our program Yet to come was the compilation of proof that physicians can band together in small communities and save lives that would otherwise be lost without concerted effort

TRANSPORT EXPERIENCES

Much has been written about the home treatment of the poliomyelitis patient, and a certain merit is to be found in these papers [2] Likewise, some authors believe that transport in itself may act adversely on the disease and produce further involvement [3] We criticize neither of these approaches, however, there is an apparent difference between applying them in a large community and applying them in a broad geographical area, such as ours, that is characterized by broad expanses of desert, great distances between small towns, and the rugged mountainous territory of the Sierra Nevadas There are many regions of our country that have similar population and physical features To them our experiences with patient transport may be of value

It is not uncommon for us to receive cases several hundred air miles from Reno Indeed, the anesthesiologist has on two occasions made flights to towns 300 miles distant in order to bring in a child with bulbospinal disease Assistance to respiration on the return flight was afforded by employing a standard anesthesia machine carried in the plane No pulse or respiratory changes were noted en route Each child had a tracheotomy and was in a respirator within seven hours of the first call concerning him The case of a 37-year-old man from an adjoining state vividly illustrates the possible danger in refusing to hospitalize an acutely ill patient because he does not exhibit respiratory difficulty This patient was admitted to our hospital after two refusals from hospitals near his home Within 12 hours after his admission vital capacity readings had fallen from normal levels to 1,200 cc The patient required 43 days in the respirator and ultimately made a complete recovery

We have had 41 seriously ill patients who have been transported from 33 to 300 miles by air, ambulance, or automobile Their ages have ranged from 7 weeks to 59 years Although impressions may be fallacious, we nonetheless feel that *no patient suffered ill effects from transport* When patients were found to be in poor condition upon arrival at the hospital the invariable observation could be made that too great a delay had been allowed before the decision to transport was made It would, therefore, appear more rational to transport patients to equipment centers early so that the shift from careful observation to definitive action can be quickly made Any patient not requiring hospitalization can readily be sent home, however, patients requiring the respirator cannot always be transported fast enough

VENTILATION STUDIES

A further observation we feel important is that we have repeatedly received patients who have been sent in only after it has become clearly obvious that they are getting into severe respiratory difficulty A careful history has again and again revealed that the difficulty had been in progress several days before reaching an alarming state Performing tidal air and vital capacity studies serially as a routine would have resulted in an earlier sounding of the alarm and earlier transport to or employment of respirator facilities The use of the respirator must not await the development of cyanosis and respiratory emergency [4], it must be employed early in any patient demonstrated to have a falling vital capacity In no other way can the nervous system of a patient already damaged by the poliomyelitis virus be protected from the superimposed and equally damaging effects of asphyxia [5] It is imperative, then, to measure the patient's *breathing* capacity It does not matter how, but measure the breathing capacity

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[1] (*a*) West H E, and Bower, A G Treatment of Poliomyelitis Involving the Respiratory System, Am J M Sc **217** 252 255 (March) 1949 (*b*) Bower, A G, Bennett V R Dillon J B and Axelrod B Investigation on the Care and Treatment of Poliomyelitis Patients, Ann West Med & Surg **4** 561 582 (Oct) 1950

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[3] Stimson, P M Home Care for Acute Poliomyelitis Postgrad Med **13** 156 158 (Feb) 1953

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We have noted that some adult patients with adequate hemoglobin levels will tolerate a diminution of vital capacity to one-sixth of the calculated normal without showing clinical cyanosis. With vital capacities 60% of the calculated normal, however, the patient complains markedly of being "just tired" and sleeps very poorly, if at all. A number of these patients have never shown specific paralysis, only generalized weakness and a feeling of extreme fatigue. It has been interesting to note that after 12 to 15 hours in the respirator a significant rise of 500 cc. or more in vital capacity has occurred. One or two hours out of the respirator has uniformly, at this point, resulted in fatigue and a fall of vital capacity to previous levels.

RESPIRATOR EXPERIENCES

As pointed out previously, we have employed actual breathing measurements in serial fashion as one major guide to the institution of respiratory assistance. Obviously, a diminished vital capacity of any degree in a patient who is acutely ill, febrile, and in the throes of a still developing disease is of far greater immediate significance than a similar diminution of capacity in a patient who is already past the acute stage, is fever free, and is not faced with the possibility of advancing paralysis and further diminution in the ability to breathe. We have set no arbitrary ventilation levels as determinants for beginning respiratory assistance but have chosen instead to judge each individual case on the basis of the over-all clinical picture; however, we have found no patient in the acute phase who tolerated a sustained decrease in vital capacity below 60% of the calculated normal. Other important factors we consider during the unstable period are (1) degree of fatigue generally as well as after deep breathing, (2) breath-holding ability, (3) use of accessory muscles of respiration, (4) degree of intercostal weakness as measured by manual restraint over lower rib cage, (5) type of breathing—thoracic or diaphragmatic, (6) asymmetry of chest expansion, (7) clinical determination of diaphragmatic descent bilaterally, (8) stethoscopic evidence of amount of air flow into the two lungs, (9) deltoid weakness or paralysis suggesting impaired diaphragmatic activity, (10) ability to rest or sleep, (11) apprehension, and (12) cyanosis. Certainly there is no substitute for constant watching of any patient who may require mechanized breathing assistance. Check and recheck, evaluate and reevaluate is a necessity. Once the important decision has been made to employ a respirator, great care is exercised in softening the psychological shock the patient will experience. The function of the respirator is explained, and stress is placed on the fact that it is nothing more than a breathing helper that can be adjusted to suit the patient. Other patients sleeping or lying quietly in respirators are pointed out.

Cycling of respirator pressure and rate is achieved through diligent consultation with the patient as to whether the tank breathes too much or too little, too fast or too slow. Arbitrary rates and pressures are used only as starting points. A satisfactory starting point we have employed, except in infants and children below five years of age, has been to place the mask of the ventilation meter over the patient's face and set the negative tank pressure at a level that will reproduce the patient's calculated tidal air. When respirator care is first instituted a good many patients have been found to require an artificially induced tidal exchange of approximately double their normal; however, we start with a reproduction of the normal and increase to the point of patient satisfaction, coupled, of course, with evidence of adequate clinical improvement and cessation of voluntary breathing out of cycle with the respirator. Later we attempt to decrease the artificial ventilation gradually.

High negative pressures may be required to produce adequate ventilation in large or obese adults. A 40-year-old woman, height 5 ft. 7 in. (170.18 cm.) and weight 220 lb. (99.8 kg.), required a negative pressure of 25 in order to provide a tidal exchange of 600 cc. The weight of her large pendulous breasts as a factor in immobilizing the chest must be given due consideration. Respirator cycling of infants is an exacting, painstaking, and difficult task. Experience has been limited in our series to one baby seven weeks old with tracheotomy and one baby two and one-half months old without tracheotomy. A juvenile respirator is needed if the rapid respiratory rate of an acutely ill infant is to be reproduced. In addition to the usual turning of patients to minimize the chance of atelectasis, we have employed several other techniques: (1) hyperventilating the patient several times daily by doubling the negative tank pressure for five minutes, placing the mask of a standard anesthesia machine over the patient's face and manually forcing oxygen or helium-oxygen into his lungs by compressing the breathing bag, and increasing the positive tracheal pressure by means of the respirator attachment in cases with tracheotomy, and (2) teaching a patient to close his glottis at the end of inspiration and attempt to cough. If the respirator is run to its maximum negative pressure and the large "bed pan door" opened suddenly at the end of inspiration a fairly effective cough may be simulated. The negative respirator pressure may be augmented further (–40 to –50) by the simple expedient of taking a tank-type vacuum cleaner and sealing the hose in a respirator port. This additional pressure will greatly boost the negative respirator pressure.[6]

Prolonged hyperventilation and low carbon dioxide combining power may be a great factor in respirator habituation. Taking this into account has led us to take patients out of the respirator for short intervals of one to five minutes, starting as soon as respirator assistance is instituted. Time out of the respirator is gradually increased by 5 to 15 minute increments. Signs of distress and fatigue are carefully watched for, and a pulse rise of 20 points is considered valid reason for closing the tank. A measured increase in the ability to breathe is employed as an additional index of the patient's ability to withstand longer periods out of the respirator. Increasing the time out is carried on until finally the patient is out of the tank all day but returns to it at night. When a patient is able to withstand being out of the tank all day without undue fatigue or significant drop in vital capacity he is then ready to be taken completely out of the respirator with the clear understanding that he will be returned for intervals of rest if his breathing capacity decreases Such has occasionally been necessary [7]

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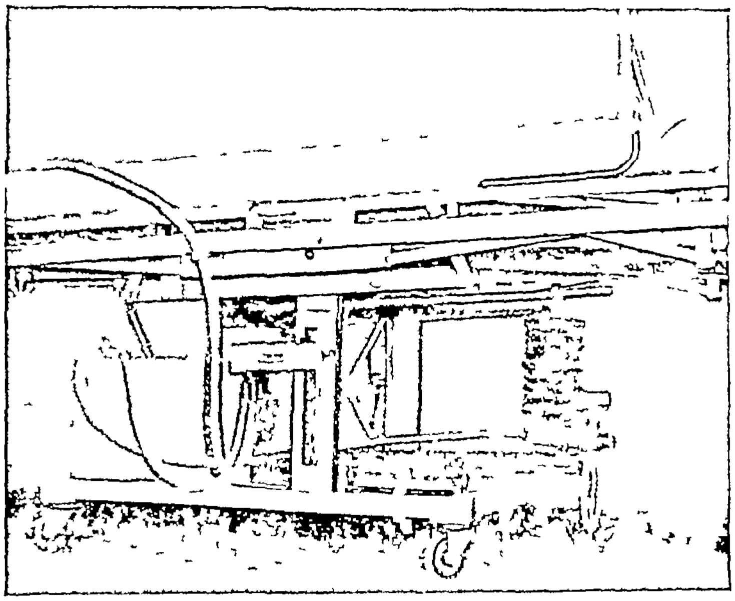
ROCKING BED

Intermittent daily use of the rocking bed has been of great value in decreasing respirator dependence once the acute phase of illness is past It is wise to keep in mind that the amount of tidal exchange produced by rocking is below minimal requirements [8] Patients with little or no breathing capacity, therefore, cannot be expected to ventilate adequately on a rocking bed unless additional aid to breathing is supplied A 12-year-old boy who was quadriplegic for five months gave us the impetus to explore this field He had a vital capacity of zero, and a serious renal and bladder infection had developed from prolonged urinary stasis due to his recumbent position in the respirator It was not only felt that the rocking bed would facilitate the drainage of pulmonary secretions, but also that the postural change would beneficially effect renal drainage Within three minutes after being placed on the rocker the patient was in respiratory difficulty The idea was then conceived that an intermittent positive pressure respirator attachment could be adapted to the rocking bed and thereby the efficiency of this artificial respiratory unit could be increased so that it would produce an adequate tidal exchange (see figure)



An original adaptation of the intermittent positive pressure respirator attachment to the rocking bed

The adaptation was very simple Directly under the bedsprings a section of ¾ in pipe was bracketed to run longitudinally from the center of the bed to the foot A piece of angle iron was then bracketed to the lower portion of the supporting framework for the bed in such fashion as to run below the pipe With the bed horizontal the pipe and the angle iron ran parallel in the vertical plane The positive pressure bellows was then placed vertically between these two supports and clamped in position under the foot of the bed A lever-type snap clamp was attached to the outside of the bed-spring frame near the head of the bed, to afford support for the long plastic tube that conducts air from the bellows to the tracheotomy As the foot of the bed rocks down, producing inspiration, the bellows is compressed and forces air via the plastic tube down the tracheotomy The amount of air delivered can be varied by moving the bellows from the point of least excursion near the fulcrum or rocking-axis of the bed to any desired point further out toward the foot, where excursion is greatest A tidal exchange of 700 cc can be produced in this fashion We have employed this device in four tracheotomy patients with gratifying results Patients with no respiratory ability have repeatedly been maintained in good condition for 12 hour periods Such an apparatus has a limited but useful application

TRACHEOTOMY

To facilitate respirator care our team has adopted the technique of early tracheotomy at a high level—preferably through the second tracheal ring—in those patients presenting the indications for tracheotomy The high level is necessary to afford working room for tracheotomy care [1] Local anesthesia has proved adequate for the procedure, during which assistance to respiration is maintained by manual compression of the breathing bag of a standard anesthesia machine The decision to adopt so-called elective tracheotomy was reached after it became apparent that several patients treated by the conservative methods of postural drainage and suction [9] might have fared better with early tracheotomy

We were influenced by other factors as well First, it would seem that any patient possessed of a progressive disease that makes him incapable of swallowing his own secretions is most precariously situated [10] Such a patient is apt to vomit or regurgitate, and a single episode of this sort could cause death Second, the initial problem of upper respiratory obstruction, hypoventilation, and asphyxia, with resultant pulmonary edema and death, would appear more safely combated by the positive approach of tracheotomy [11] Third, lower respiratory obstruction and atelectasis can best be prevented by tracheotomy in that group of patients who have or may progress to a breathing capacity of zero, even in the absence of bulbar involvement [12] Use of an intermittent positive pressure respirator attachment with tracheotomy makes it possible to have the tank open long enough to perform the nursing necessities and still maintain breathing Additionally, it is possible to clear the lower respiratory passages at any time without patient cooperation This is vitally important Tracheotomy is not without the many hazards of pneumothorax, bleeding, plugging, vocal cord injury, and infection [13], however, the advantages gained by its judicious and timely use far outweigh the disadvantages

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LABORATORY STUDIES

Our experience has demonstrated the need for repeated blood transfusion, plus daily administration of plasma and concentrated serum albumin, particularly during the first 10 to 21 days of hospitalization, because anemia, decreased total serum protein, and reversal of the albumin-globulin ratio have shown a marked tendency to develop in our patients The deviations from normal have paralleled the degree of illness and have led us to employ careful laboratory control of blood chemistry studies in the acute phase The studies ordered are (1) albumin-globulin ratio, (2) total serum protein, (3) red blood cell count, (4) hemoglobin, (5) hematocrit, (6) carbon dioxide combining power, and (7) serum chloride These studies are done daily in many of the critically ill and are progressively decreased as the patient's condition stabilizes

If any single laboratory test could be chosen as being of paramount importance that choice would be a daily determination of the albumin-globulin ratio, since the reversal of this ratio and depletion of total serum protein occur so commonly in the patient with extensive paralysis Add to the inflammatory edema of the central nervous system a superimposed nutritional or hypoproteinemic edema and grave difficulty can ensue Nerve cells may be made physiologically inactive from the edema alone If allowed to persist, this edema may destroy nerve cells never touched by the virus

RESULTS

During three consecutive years of poliomyelitis team operation 51 patients were treated who required mechanical aid to respiration for an average of 114 3 days The tank-type respirator was employed in 49 cases An intermittent positive pressure respirator attachment was used on all respirators with tracheotomy patients Two patients in the acute phase were satisfactorily treated by use of the rocking bed One of these had a tracheotomy through which inspiration was further augmented by means of an intermittent positive pressure respirator attachment specially adapted to the rocking bed There were 7 bulbar cases, 10 high spinal, and 35 bulbospinal cases In this critical group 30 tracheotomies were done, or an incidence of 58 8% There were 12 deaths, giving a mortality rate of 23 5%

SUMMARY AND CONCLUSIONS

Using a poliomyelitis team, with the anesthesiologist responsible for the respirator unit, 51 patients requiring respiratory assistance were treated over a three year period with a mortality rate of 23 5% Two patients below three months of age required the respirator, both recovered The adaptation of an intermittent positive pressure respirator attachment to the rocking bed was used for four patients who required long-term respirator assistance

It might well be said that patients with poliomyelitis most often die of inadequate and poorly timed treatment. Prohibitive mortality rates can be lowered by a planned approach on the basis of an organized "poliomyelitis team," whereon the anesthesiologist can play a vital part Strict attention should be given to the principles of early patient transport to treatment facilities, early tracheotomy at the second tracheal ring, serial ventilation studies as a guide to early respirator care, and rigid laboratory control of blood chemistry studies

505 Chestnut St. (Dr O Brien)

CLINICAL NOTES

EVALUATION OF AN ORTHOTOLIDINE TEST (FECATEST) FOR DETERMINATION OF OCCULT BLOOD

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and
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For practical purposes, normal persons on a meat-free diet do not pass occult blood in the feces Consequently, the presence of occult blood with the absence of bleeding from the mouth, throat, respiratory tract, or anal ring indicates an ulcerating lesion in the gastrointestinal tract, very often peptic ulcer or carcinoma Positive tests for occult blood in the feces may be the earliest indication of such lesions

The four principal methods for the detection of occult blood in the feces have been reviewed by Hughes[1] They are (1) microscopic demonstration of red blood cells, (2) microscopic demonstration of crystals of hemoglobin or derivatives, (3) spectroscopic tests demonstrating the presence of hemoglobin or derivatives, and (4) tests depending on the ability of hemoglobin or its derivatives to oxidize certain chromogenic substances (guaiac, guaiaconic acid, aloin, benzidine, malachite green, phenolphthalein, and orthotolidine) In this latter group greatest attention recently has been devoted to the guaiac, benzidine (including modifications), and orthotolidine tests

In vitro studies have shown that the maximum dilution of blood detectable for the guaiac test ranges from 1 1,000[2] to 1 30,000[1], for the benzidine tests, from 1 48,000[1] to 1 5,000,000[3], for modified benzidine tests, 1 16,000[1] to 1 100,000[4], and for the orthotolidine test, 1 20,000[2] to 1 1,000,000[5] The amount of ingested blood sufficient to cause a positive test for occult blood in the stool is small for all three methods Peranio[6] in a review of the literature found that orthotolidine gave a positive test for 1 to 4 5 cc of ingested blood, benzi-

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From the Department of Medicine University of Chicago Dr Rider is now at the University of California School of Medicine

Dr Joseph B Kirsner Professor of Medicine University of Chicago aided in the study and the preparation of the manuscript.

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[6] Peranio A., and Bruger M The Detection of Occult Blood in Feces Including Observations on the Ingestion of Iron and Whole Blood J Lab & Clin. Med 38 433-445 (Sept) 1951

dine was positive for 1 to 5 cc , and guaiac was positive for 0 5 to 10 cc Twenty cubic centimeters of ingested blood was required to cause a positive guaiac test with the patient on a meat-free diet, while only 2 to 3 cc sufficed with an unrestricted diet Cowie [7] found that as little as 20 gm of uncooked beef in the diet caused a positive guaiac test The sensitivity of the tests also can be increased by the use of laxatives Other sources of error [8] are the presence of ferrous sulfate in the diet, producing a weakly positive guaiac test, and soya beans and urease tablets, which when cold cause positive reactions to both the guaiac and benzidine tests False reactions caused by soya beans and urease tablets do not occur, however, if these materials are first boiled A solution of 1 1,000 copper sulfate also may cause a false positive benzidine test

The benzidine test is the simplest and most accurate procedure available for the chemical detection of blood in the feces This test, however, requires a meat-free diet, an inconvenience increasing the problem of cooperation from the patient (Hoerr found that 95% of 92 unselected hospital patients' stools were positive to the benzidine test) Modified, less sensitive benzidine tests have been devised and may be used in patients not on a meat-free diet Hughes [1] describes a modified benzidine test on 350 stools of patients eating an ordinary hospital diet with meat, positive stools were obtained in only 3, and there was a reasonable explanation for each These tests may be criticized as not sufficiently sensitive, and one may be lulled into unwarranted security with a false negative reaction

Hoerr [2] examined the first stool of 140 unselected hospital patients with the guaiac test and found 39 positive There appeared to be no adequate clinical explanation for eight of the positive reactions Furthermore, among 101 patients with negative reactions there were 3 patients with ulcerative malignant lesions of the gastrointestinal tract The author concludes that negative reactions do not rule out organic disease of the gastrointestinal tract Also, the number of false positive results was rather high

Barnett [9] found that one-half of 24 patients with cancer of the gastrointestinal tract failed to have a positive guaiac test, indicating that this procedure should not be considered a "screening" test for cancer He also found 5 7% false positive reactions in testing 255 stools from 168 patients with no dietary restrictions There were 3 5% false negative reactions in patients with lesions that could be expected to bleed at the time of the test Mason and Belfus [10] found that only 25, or 22 5%, of 111 patients on a regular diet who had a positive guaiac reaction had a positive benzidine reaction when tested after they had been on a meat-free diet, 4 of 10 patients with gastrointestinal cancer had a negative guaiac test

These observations indicate that there are too many false negative reactions with guaiac and that the unmodified benzidine test is too sensitive for use with an unrestricted diet The modified benzidine tests may be better, but since their sensitivity is similar to guaiac they also may produce too many false negative reactions The objective in the examination of the feces for occult blood is simplicity without loss of accuracy, its accomplishment would facilitate the cooperation of the patient and the more universal testing of stools for occult blood

An orthotolidine test (Fecatest) package [11] has been developed, which is designed for use with an unrestricted diet and can, if desired, be used by the patient at home in testing for occult blood This paper will describe the results of this test in 100 unselected gastrointestinal clinic patients with and without a meat-free diet and compare these results with those of the benzidine test obtained while the patient was on a meat-free diet

MATERIALS AND METHODS

Benzidine Test—A saturated solution of benzidine is prepared by adding a pinch of powdered benzidine to 4 cc of glacial acetic acid To this is added 8 cc of hydrogen peroxide Using a pipet, 1 or 2 cc of the solution is allowed to flow over the inside surface of the stool sample A positive reaction varies in intensity from a pale blue or blue-green that develops slowly over a few minutes, recorded as 1+ reaction, to a deep blue-black color appearing almost at once, recorded as a 4+ reaction, 2 and 3+ reactions are arbitrary divisions between these limits

Orthotolidine Test—There are two components for the orthotolidine test, one an effervescent mixing tablet and the second a porous paper packet containing the blood-detecting reagent The effervescent mixing tablet contains sodium bicarbonate and citric acid, which interact when placed in water to produce carbon dioxide The effervescence merely stirs the contents of the toilet bowl after a stool has been passed so that blood present in the stool is distributed throughout the water in the toilet bowl

The porous packet contains a mixture of orthotolidine, strontium peroxide, tartaric acid, and calcium acetate The mechanism by which the material reacts with blood is not completely understood, but it is believed to be as follows Blood is adsorbed on the surface of the packet, where it acts as a pseudoenzyme and catalyzes the breakdown of hydrogen peroxide to water and active oxygen The active oxygen oxidizes the orthotolidine to a blue-colored oxidation product, which is also adsorbed on the surface of the packet, giving it a blue color The hydrogen peroxide originates from the interaction of the strontium peroxide, tartaric acid, and calcium acetate of the powder mixture

The specific instructions to the patients are as follows The test is done in a toilet bowl that contains a bowel movement (If possible the urine is passed first and the toilet is flushed before the bowel movement The toilet should not be flushed again until the test is completed) The white wrapper is opened, and the tablet is dropped into toilet bowl The tablet should bubble until dissolved (about two minutes) The silver wrapper is opened by cutting or carefully tearing along the sealed edge The paper packet inside must not be damaged The packet is removed It is held by one corner and dropped into the toilet bowl The packet should be completely wet and floating The color that forms on face of packet is noted Any color seen at end of one minute, two minutes, and four minutes is recorded on the test record (The face of the packet may remain grey or tan or become stained with blue)

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[7] Cowie, D M A Comparative Study of the Occult Blood Tests A New Modification of the Guaiac Reaction Its Value in Legal Medicine, Am J M Sc **133** 408-423, 1907

[8] Hughes[1] Hoerr and others[2]

[9] Barnett, R N The Guaiac Test Correlation with Clinical Findings, Gastroenterology **21** 540 543 (Aug) 1952

[10] Mason, E W , and Belfus F H Detection of Occult Blood as a Routine Office Procedure, J A M A **149** 1526-1528 (Aug 23) 1952

[11] The test was developed by the Ames Company, Inc , Elkhart Ind

PROCEDURE AND RESULTS

Each of the 100 patients was instructed to eat a meat-free diet for six days A stool was tested each day at home by the patient according to the above instructions Portions of the tested stool from the last three days then were tested with benzidine in the laboratory

The great majority (80%) of the patients were able to test all six samples, a few tested only four or five Those who were unable to test at least four stools were not included in the series Since several days are required to rid the gastrointestinal tract of previously ingested meat, it was possible to compare the orthotolidine test for the patient on an unrestricted diet (the first two or three stools) with that for a patient on a meat-free diet (the last three stools) In addition, this test could be compared to the benzidine test on a meat-free diet Thus, the strictest comparison was possible All patients had a complete gastrointestinal x-ray survey as well as a proctoscopic examination in order to confirm the diagnoses

Of the 100 patients there were 49 with a negative orthotolidine and a negative benzidine test, none of these patients had organic gastrointestinal disease There were 11 patients who had a positive orthotolidine test and a positive benzidine test, all of these had organic disease adequately explaining the positive results There was one patient with a negative orthotolidine test but two trace positive benzidine tests for which there was no explanation

There were 39 patients in whom there was no correlation between the orthotolidine test and benzidine test, all had positive orthotolidine tests Nine positive tests were adequately explained on the basis of hemorrhoids, rectal polyps, or ulcerative colitis, since by virtue of the mechanics of the test benzidine did not give a positive reaction when there was blood only on the surface of the stool There were 14 patients who gave a positive orthotolidine test during one or all of the first three days only It is felt that these can be explained on the basis of diet There were 11 patients who had from one to six trace reactions, these usually were described as very faint blue reactions or small (in some cases pinhead size) blue spots on the testing paper These trace reactions were found not to be caused by organic disease Whether they were caused by a reaction with urine, the water in the toilet bowl, or something in the diet is unknown There were five additional patients who had from one to four positive orthotolidine tests (13 of the 30 tests in this group), these could not be explained by diet or by obvious rectal or other gastrointestinal pathological conditions

SUMMARY AND CONCLUSIONS

For practical purposes the orthotolidine test can be used by the patient at home while he is on an unrestricted diet However, if any positive reactions occur, it is essential to have the patient go on a meat-free diet and then repeat the tests If the trace reactions to the orthotolodine test are excluded, there are 19% false positive reactions If the stools from the patients on the unrestricted diet are excluded, this figure becomes 5% Thus, in the present series 5% gave false positive reactions for the orthotolidine test but there was only one false positive reaction for the benzidine test There were no false negative reactions for either the orthotolidine or the benzidine test

The orthotolidine test appears to be an excellent simple screening test for occult blood in the feces, providing the patients are on a meat-free diet and trace reactions are excluded The incidence of false positive tests in the present series of 100 unselected gastrointestinal patients was 5% compared to 1% for the benzidine test Lesions low in the colon and rectum causing blood to be present on the surface of the stool increase the incidence of positive orthotolidine tests compared with the benzidine procedure, in which only the inside of the stool is examined

ACCIDENTAL POISONING BY VERATRUM JAPONICUM

A CLINICAL REPORT

Lieut Dewey A Nelson (MC), U S Army

On May 6, 1953, while serving as a battalion surgeon in Korea, I was contacted by a Korean Service Corps physician to observe and advise treatment to 14 men During the preceding winter months the diet of the Korean Service Corps had been very deficient in leafy vegetables, on the first appearance of green plants, the cook of a 14-man labor party had selected those he thought were edible and boiled them into a green soup (a common practice among Korean rural dwellers) The soup was eaten at 12 00 noon At 1 00 p m three of these men began to vomit profusely, and two hours later they complained of seeing circles, yellow sheets of flame, and yellow and green spots before the eyes At 3 00 p m six more men became ill and reported to their medical officer In addition to severe vomiting, prostration, weakness, and the visual disturbances described above, they complained of being unable to move the eye from a position of forward gaze At this point the Korean physician sought aid Because I was unable to leave my aid-station, I advised that 1,000 cc of isotonic sodium chloride solution be administered intravenously to each man

At 5 00 I first observed these patients During the next five hours, five more patients reported to the medical tent complaining of the above symptoms, which had begun in the early afternoon This brought the total number of cases to 14 At this time I did not know the cause of these bizarre clinical manifestations, it was as-

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From the United States Army Hospital 8079 Army Unit

Lieut Nelson is now with the 14th Medical Dispensary

Capt Edwin W Smith Dental Corps U S Army Lieut Paul L Redfearn, Medical Service Corps 406th Medical General Laboratory and Dr M Fujita Assistant Professor of Pharmaceutics University of Tokyo Medical School assisted in the preparation of this report sumed that a plant or plants had poisoned the patients, but the nature of these plants was unknown It seemed logical, however, to attempt to elevate the blood pressures and speed the pulses by subcutaneous and intravenous instillations of epinephrine Due to particularly adverse field conditions, it was difficult to keep a clinical record on every patient, although it was possible to record some blood pressures and pulses The efficacy of therapy was judged in most instances by clinical judgment of the pulse characteristics A Tycos sphygmomanometer was used Without exception, the patients appeared extremely ill and had paroxysms of vomiting that produced green matter and copious quantities of fluids All pulses were below 40 per minute, the most severely ill patient had a pulse of 4 to 5 per minute All had injected conjunctivas, distended abdomens, and difficulty in opening the eyes widely No extraocular paralyses were noted The average blood pressure was 80/60 mm Hg, the highest blood pressure before treatment being 105/60 and the lowest, 50/0 mm Hg Summaries of the courses of three patients over a 15 hour period are presented in table 1 The lag in time between initial observation and aggressive

TABLE 1 —*Clinical Summaries of Three Cases of Veratrum Poisoning*

Time	Pulse	Blood Pressure, Mm Hg	Temperature, Degrees F	Clinical Observations	Treatment
				Case 1	
5 00 p m	32, regular			Vomiting lethargy, eyes squinted, conjunctivas injected weak pulse, muscular weakness	Infusion of 1 l isotonic sodium chloride solution ending
5 45	20, regular			Pulse weak	1 cc 1 2,600 epinephrine subcutaneously
5 50	44, regular	50/0	97 5	Semiconscious, does not answer	1 cc 1 2,600 epinephrine subcutaneously
5 53	44, regular	50/40		Generalized muscular tremors, no response to painful stimuli	
6 15	4 5	0/0		Forehead and extremities cold, skin dry, respirations slow	0 5 cc 1 2 600 epinephrine intravenously
6 17	54, regular	100/50		Attempts to arise deep, labored respirations, extreme apprehension	
6 22		50/40			
6 30		50/0		Unresponsive, extremities cold	4 cc 1 1,000 epinephrine added to 1 l isotonic sodium chloride solution and infusion begun
6 40	56, regular	115/60		Responds to questions	Infusion continued 150-160 drops per min
6 45	54, regular	130/80		Severe vomiting and retching	Infusion slowed
7 30	60 regular	60/40		Complains of weakness	Infusion speeded
7 50		120/70		Retching	Drops per min decreased
8 40		100/65		Asleep, awakens easily	
9 30	66	115/70		Asleep	Infusion discontinued
10 10		80/40		Restless	1 l isotonic sodium chloride solution with 4 cc 1 1,000 epinephrine begun intravenously
4 15 a m	65			Pulse strong, asleep	Infusion discontinued
7 15	70	90/60		Awake, cheerful voided 1,000 cc light yellow urine specific gravity 1 028, no sugar or albumin, centrifuged sediment shows 10-12 leukocytes, 3 erythrocytes per high power field	
				Case 2	
5 10 p m	50, regular		100	Severe vomiting, injected conjunctivas, complains of yellow light in front of his eyes, abdomen flaccid and distended, headache, pulse strong	1 l isotonic sodium chloride solution just ending
6 50	38, regular	80/40		Very lethargic, moving patient causes vomiting and retching	0 25 cc 1 1,000 epinephrine subcutaneously
7 20	40 regular	80/40		Restless	0 25 cc 1 1,000 epinephrine subcutaneously
7 40	48, regular	90/60		Quiet *	
				Case 3	
5 15 p m	56, regular	90/50		Same symptoms as in cases 1 and 2	1 l isotonic sodium chloride solution given earlier
7 45	40, regular	80/70		Extremities cold responds sluggishly to questions	0.5 cc 1 1,000 epinephrine subcutaneously
48		200/100		Markedly apprehensive, complains of pounding in his ears pulse fast and irregular	
8 05		100/60		Resting quietly *	
10 15	70, regular	100/70		Asleep	

* The same therapy was repeated several times when the systolic blood pressure fell below 80 mm Hg, but no accurate data were kept

TABLE 2 —*Plants Contained in the Soup*

Generic Name	Common Name	Japanese Name	Korean Name	Toxic Property
Thalictrum bicalence	Meadow rue	Karomatsuso	Kongyechol Kori	None
Aralia elata	Devil s club	Taranoki	Turupnamu	None
Taraxacum albidum	Dandelion	Tanpopo	Pokongyong & Mumtore	None
Veratrum japonicum	False hellebore	Shuro so	Paksai Ryoro	Toxic alkaloids
Aster scaber	Aster	Shira Yonogiku	Chui	None
Allium sp	Wild onion	Yama Negi	Manual	None
Adenophora verticellata	Unknown	Sobana	Tsugane Nengen	None
Carex siderostrica	Sedge	Taganeso	Unknown	None
Cimicifuga foetida	Snakeroot	Koraishoma	Probably known as Sunguma	None
Lathyrus davidii	Vetch	Endoso	Wharyong Namul	None

treatment was due to sending for medical supplies The following morning all the patients had systolic blood pressures between 90 and 120 mm Hg, and five of them returned to work The cook returned to the area where the plants had been collected and picked a group that, he stated, were the very ones he had used the preceding day I submitted these to the 406th Medical General Laboratory in Japan for identification The only plant submitted that is suspected to contain toxic materials was Veratrum japonicum (table 2)

COMMENT

Veratrum nigrum L var japonicum (Baker) grows on the hills and mountainsides of Korea and Japan and, probably, in other Oriental countries with temperate climates There is little clinical information concerning this variety, but the close parallel between the observed symptoms and symptoms of V viride intoxication[1] suggests that V japonicum produced these clinical manifestations Muenscher[2] gives the habitat of the poisonous veratrum plants in the United States and lists symptoms of veratrum poisoning in domestic animals It is interesting that these symptoms almost completely parallel those listed in this paper V viride is described as flourishing in the northeastern United States in low meadows and pastures, chiefly along streams, it also grows in the western states in the mountains Another poisonous species, V californicum Dur , is described by Muenscher[2] as occurring in wet meadows in the valleys between higher mountains

The practice of picking "wild greens" in the springtime is not limited to Korea but is also done among some rural folk in the United States With knowledge of the clinical manifestations of veratrum poisoning and the habitat of the veratrum species, it may be possible to diagnose similar cases of poisoning among rural populations in the United States and other countries

SUMMARY

Fourteen cases of poisoning followed the ingestion of a number of plants, one of which was identified as Veratrum japonicum It is believed that the observed symptoms were mostly due to V japonicum alkaloids With a knowledge of these clinical manifestations, perhaps cases of accidental poisoning by veratrum plants can be diagnosed

APO 3, c/o Postmaster, San Francisco

1 New and Nonofficial Remedies report to the Council on Pharmacy and Chemistry Alkavervir J A M A 151 820-821 (March 7) 1953

2 Muenscher W C L. Poisonous Plants of the United States New York the Macmillan Company 1943

The Work of the Potter—Dr Howard Rusk New York, in a recent lecture before the American Academy of General Practice said, Sick people ask their God, why must I suffer? Possibly the answer is in the work of the potter Fine ceramic pieces are not made by setting clay out in the sun They come only from the white heat of the kiln In the firing process some pieces are broken but those that survive the heat are transformed from dull clay into objects of priceless beauty And so it is with the sick, suffering and crippled people Those who through medical skill, opportunity, work and courage survive their illness or over come their handicap, take their places back in the world with a depth of spirit which we can hardly measure "

MECHANICAL HIP EXTENSOR

Louis N Rudin, M D
and
Daniel J Cronin, Fort Howard, Md

In order to make a paraplegic ambulant with the aid of crutches, stability must be obtained at the knee and hip joint This is accomplished by use of long leg braces with knee locks, hip locks, and a pelvic band When, in addition, there are varying degrees of paralysis of the back and abdominal muscles, a back brace is added The assumption of a sitting position presents a problem, inasmuch as the hip locking device, either a ring drop lock or a thumb device, must be released Since the patient's hands are not free because he has to hold on to his crutches, someone else must release these locks to enable the patient to sit down In getting up from a chair the patient supports his weight on his hands and arms, advances his trunk forward, and throws his abdomen anteriorly to lock the brace hip joint.

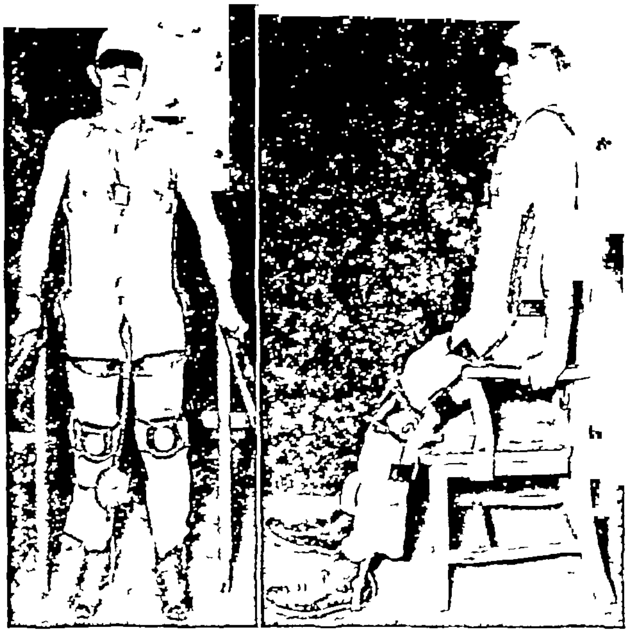

Fig. 1—Paraplegic patient using the mechanical hip extensor as an aid in standing and sitting down

In order to make a paraplegic independent of outside help in sitting down and make it easier for him to get up from a chair, a mechanical hip extensor has been devised (fig 1) It consists of a coiled spring attached by posts to the pelvic band or back brace and side bar of the long leg brace (fig 2) The tensed spring produces a constant extending force on the hip joint in a posterior direction It prevents accidental sudden flexion at the hip (jack-knifing) and falling when he is in the upright position

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Chief Physical Medicine Rehabilitation Service (Dr Rudin) and Supervisor Orthopedic Brace Shop (Mr Cronin) Veterans Administration Hospital.

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Mr William C. Beck Jr medical photographer and Mrs Jeanette M Whitehorn medical artist Veterans Administration Hospital prepared the illustrations

When the patient sits down, the weight of his body overcomes the tension of the spring and brings it to about 90 degrees During this movement the U bar of the Swiss knee lock hits the edge of the chair and opens the brace knee joint Thus the patient is able to sit down and get up from a chair without anyone else or the patient handling manually the hip or knee locks In getting up, the tensed spring is of material aid Only moderate pressure on the arms of the chair with the hands will bring the patient to an upright posture The spring or springs give atient a certain amount of flexibility at the hip joint e standing posture, which is desirable The mechan- hip extensor has been found to work satisfactorily either with a back brace or a pelvic band attached to long leg braces

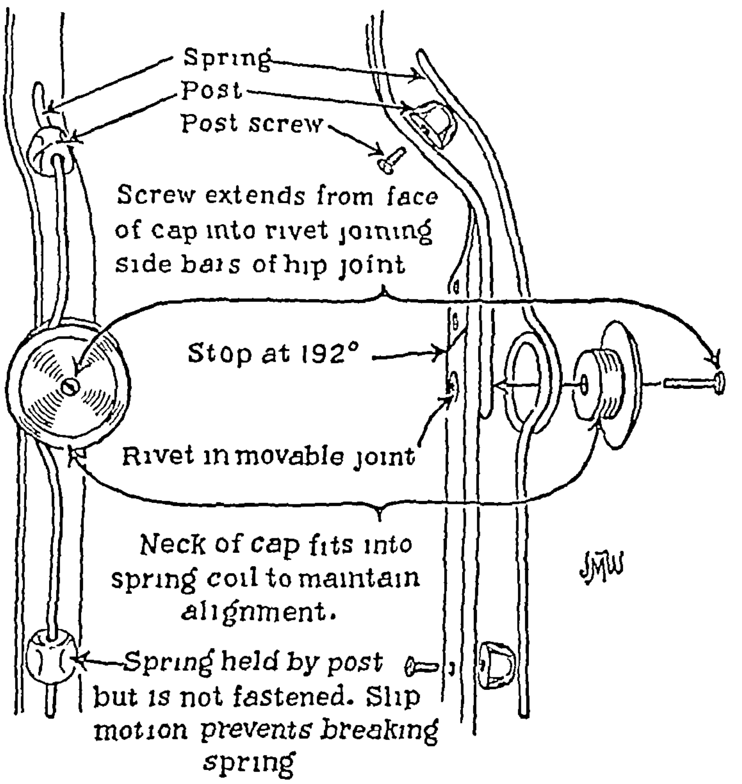
Spring
Post
Post screw
Screw extends from face of cap into rivet joining side bars of hip joint
Stop at 192°
Rivet in movable joint
Neck of cap fits into spring coil to maintain alignment.
Spring held by post but is not fastened. Slip motion prevents breaking spring
JMW

Fig 2—Drawing showing the parts of the mechanical hip extensor

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Jaundice Due to Testosterone—There is increasing evidence that a distinct type of hepatic damage is produced in some patients by administration of methyl testosterone As we become more aware of jaundice as a possible effect of methyl testosterone, we may expect this condition to be recognized more frequently The mechanism of the action of methyl testosterone in producing the liver damage remains obscure When Kinsell called attention to methyl testosterone jaundice in 1948 he pointed out that methyl testosterone caused marked creatine formation and excretion, and that this may occur at the expense of choline, with a decrease in the production of phospholipid and the resultant fatty infiltration of the liver [He] reported that there was no evidence of fatty infiltration in specimens obtained by liver biopsy He therefore concluded that there was no substantiation of the belief that the loss of creatinine resulted in loss of labile methyl groups that are considered to be instrumental in minimizing liver damage and fatty infiltration Methyl testosterone ingestion results in increased urine output of 17-ketosteroids, and offers the possibility that an intermediate metabolic product of methyl testosterone, rather than methyl testosterone itself, may be the icterogenic factor as well as the cause of creatinuria—P J Almaden, M D, and S W Ross, M D, Jaundice Due to Methyl Testosterone Therapy, *Annals of Internal Medicine,* January, 1954

SPECIAL ARTICLE

The following material was prepared by the Committee on Civil Defense of the American Psychiatric Association, at the request of the Federal Civil Defense Administration, as an aid to physicians for use in dealing with lay groups charged with civil defense responsibilities It is being reproduced with the permission of the American Psychiatric Association because of the valuable information that it contains concerning the emotional needs of disaster victims and how those needs can be met This material has been reviewed by members of the Council on National Defense and the Committee on Mental Health of this Association, and they have felt that even though much of the material presented is familiar to physicians that the compact presentation of this information as given here can be of considerable value to physicians who are or will be dealing with lay members of their local disaster relief organizations A second manual, which will concern itself with the more professional aspects of the problems involved, is now in preparation Additional copies of the prepared pamphlet from which this material is taken can be obtained from the American Psychiatric Association, 1785 Massachusetts Ave N W, Washington 6, D C

C Joseph Stetler, *Secretary*
Council on National Defense
R J Plunkett, M D, *Secretary*
Committee on Mental Health

PSYCHOLOGICAL FIRST AID IN COMMUNITY DISASTERS

PREPARED BY THE AMERICAN PSYCHIATRIC ASSOCIATION COMMITTEE ON CIVIL DEFENSE

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WHY PSYCHOLOGICAL FIRST AID

First aid is just what its name describes It is the first aid received by a person in trouble Such aid should be concerned only with the immediate situation First aid goals should be either to return moderately disabled persons to reasonably good function in a short time or to make the more serious casualties as comfortable as possible until more complete care can be arranged for them

Most of you do not have much occasion to work with people who are grossly upset emotionally In all disasters, whether they result from the forces of nature or from enemy attack, the people involved are subjected to stresses of a severity and quality not generally encountered Their reactions to these experiences may be quite different from their usual behavior It is vital for all disaster workers to have some familiarity with common patterns of reaction to unusual emotional stress and strain These workers must also know the fundamental principles of coping most effectively with disturbed people

Although this publication has been stimulated by the current needs for civil defense against possible enemy action, the principles described in it are widely applicable to any community disaster These principles are essential for those who are to help the victims of floods, fires, tornadoes and other natural catastrophes

FIVE TYPES OF REACTIONS TO DISASTER

Knowledge of a few basic surgical principles enables many nonmedical people to give first aid for physical injuries Similarly, awareness of certain psychological facts will greatly simplify your care of terrified, depressed, disaster victims Whatever your special disaster assignment may be, you will inevitably be working with people under great stress The following are the general types of reactions to be expected in varying proportions according to the nature and magnitude of the disaster

Normal Reactions to Disaster —Some people are able to remain remarkably calm, at least for a time, even under the most extraordinary circumstances The great majority of us, however, tend to show obvious signs of disturbance We may perspire profusely, we may tremble a bit, or we may even feel weak and nauseated for a little while Clear thinking may be difficult for a time Fortunately, many of us can regain our composure fairly well rather soon after the first impact of a devastating experience It would be misleading to classify all these natural and largely transient reactions to stress as abnormal There are occasions, however, when even very stable people are so overwhelmed by an event, that they are unable to recover a semblance of emotional balance for quite a while and may require help from someone else

Individual Panic (Blind Flight) —Although this reaction to danger is far less frequent than you may expect, its notorious contagiousness gives it an importance far out of proportion to its initial frequency A very small number of individuals in true panic can easily precipitate headlong mass flight of a crowd

The outstanding characteristic of panic is its blindness All judgment seems to disappear and to be supplanted by an unreasoning attempt to flee On a sinking ship, overcrowded lifeboats have been stormed by terrified passengers who seemed totally unaware of other less-filled boats nearby In theater fires the risk of being crushed to death has not deterred some in the audience from stampeding a single exit, even though other exits were obviously available

In other instances, individual panic may be manifested by pointless physical activity, such as uncontrolled weeping or wild running about Situations most conducive to this type of behavior (often called "hysterics") are those where known escapes actually are, or are believed to be, threatened by progression of the danger Sheer horror may also precipitate a very similar reaction The sight of close friends or family who have suffered gruesome mutilation may bring on wildly disorganized behavior in certain persons, especially if they themselves have suffered little or no physical injury

One must remember, however, that simply moving away from a source of real danger as rapidly as possible, and in an orderly fashion, is not evidence of panic If no useful purpose is to be served by remaining in a perilous situation, constructive efforts to escape from it are only manifestations of good sense

Depressed Reactions (Slowed Down, Numbed) —In disasters many people will act for a time as though they were numbed They may stand or sit in the midst of utter chaos as though they were completely alone in the world Their gaze will be vacant When spoken to, they may not reply at all, or simply shrug their shoulders and utter a word or two Unlike the person in panic who seeks physical escape at any cost, they appear to be completely unaware of the situation and devoid of emotional reaction to it They are unable to help themselves without guidance After the recent earthquakes in Greece, many survivors were found doing nothing, even though tools for reconstruction were at hand in their damaged communities Such disaster victims are obviously unable to take responsibility for themselves or for jobs requiring any initiative Fortunately, a great many of the less severely disturbed persons in this group can be salvaged rather quickly and with fair success by methods described later in this manual

Overly-Active Responses —In contrast to the disaster victims just described, others will explode into a flurry of activity which at first glance may seem purposeful, but will soon be recognized as largely useless They will talk rapidly, joke inappropriately, and make endless suggestions and demands of little real value They will jump about from job to job and seem unable to resist the slightest distraction They appear to flee into an unreal confidence in their abilities, which causes them to be relatively intolerant of any ideas but their own Consequently, even one such person can become a disturbing nucleus of opposition to sounder procedures than he himself can actually propose

Bodily Reactions —Some bodily reactions have already been mentioned as the normal temporary responses of many of us to unusual stresses Although these "normal symptoms" are troublesome while they last, they generally do not interfere seriously with a person's ability to carry on constructive activity in a difficult situation Certain of these reactions, especially weakness, trembling, and crying may not appear until after a person has effectually met and surmounted the immediate danger

More serious and sustained bodily reactions can be truly disabling, however, and it is important to recognize their emotional significance Severe nausea and vomiting are particularly common Since these symptoms may also result from serious exposure to radiation or to certain biological and chemical warfare agents, it should be remembered that many individuals *not* so exposed may suffer from these symptoms for purely emotional reasons

Another type of bodily disability may be encountered which is basically different from the disorders just mentioned This is technically called "conversion hysteria" (not to be confused with the condition of wild excitement usually designated by the popular term "hysterics") In conversion hysteria, the person *unconsciously* converts his great anxiety into a strong belief that some part of his body has ceased to function For all practical purposes he may be unable to see, or to hear, or to speak All feeling or power may disappear from one or more limbs The development of such conversion symptoms reduces the overwhelming anxiety previously felt It should be emphasized that such casualties are not "faking" (malingering) They are completely unaware that no physical basis for their symptoms exists, and they are just as disabled as though they had a physical injury

The disaster reactions described above have been separated into five categories largely for the sake of clarity and because, to some degree, individuals in each group obviously must be treated differently when encountered Actually one disaster victim may show some features of more than one category simultaneously or at successive stages of his reaction For example, the initially numbed, depressed victim may later swing spontaneously into excessive activity and great distractibility These variations need not be too troublesome in psychological first aid, however, since your chief job will be to deal with the casualty as you find him and for only a relatively short period of time thereafter

FOUR BASIC PRINCIPLES

To be of maximum service to an emotionally disturbed person, certain general principles must be reasonably understood and believed A brief discussion of them ollows

Accept Every Person's Right to Have His Own Feelings—Do not blame or ridicule a person for feeling as he does Your job is to help him cope with his feelings—not to tell him how he *should* feel If you stop to think of your own feelings, you will realize how impossible it is for human beings to make a conscious choice of their deeper feelings Our freedom of conscious choice—and hence our responsibility—depends upon what we *do* about our feelings to relieve the tensions they create within us After we have taken appropriate action, the initial feelings may change, sometimes quickly, sometimes gradually Nothing is gained by trying to deny that the initial feelings existed just because they were at variance with what we now think a self-respecting human being *should* feel

Keep in mind that however similar another person's background may be to your own, each person has had certain unique experiences which can strongely affect his feelings in relation to subsequent events in his life Thus disaster will have many meanings to the many victims Above and beyond the horror and fear which all may properly feel, the person will react in terms of how this experience fits in with his past ideas about himself and his aspirations for the future, as well as the world in which he has lived and expects to live

All of us have failed in some things we have tried to do and have succeeded in others Being human, we have not always really understood just why we have failed or succeeded Hence we have looked about us and within ourselves for understandable "reasons" for these failures and successes It is a rare person who can accurately identify the causes and motivations of actions in which he is involved or his own motivations concerning them The average person tends to give more blame or credit than he should to himself, to others, or to chance It is the rule rather than the exception that people are either more proud or more ashamed of courses of conduct than the actual facts entitle them to be When disaster strikes, many will be inclined to suspect, at least, that their past mistakes account in some way for their being among the victims

A poignant example of this trait has been reported from Nagasaki, where the second atomic bomb attack was so devastating A little boy had been caught beneath a fallen beam and could not free himself because a spike pressed on his chest He later recalled the first thoughts he had about the *meaning* of the experience to him He was *sure* the spike on his chest was a direct punishment, designed specially for him, because he had collected butterflies and pinned them to a board!

In giving psychological first aid, you will seldom be exactly sure *why* some persons become more disturbed than others about them Years of research and analysis may sometimes fail to explain fully *why* a person feels as he does Fortunately, it is infinitely easier to determine *how* he feels at a given moment His expression, his posture, his whole manner can tell you this, even though he says nothing with words Letting a casualty know you want to understand *how* he feels can be the first step toward helping him This may be done with a few words or even a simple gesture Do not overwhelm him with pity This will only make him feel more inadequate and will confirm his worst fears about himself Just do enough to establish such contact as you can with him If he senses even vaguely that you are trying to see this disaster through his eyes, your chances of helping him find constructive outlets for his distressed feelings will be greatly increased It is the collapse of *his* world that distresses him He will not trust you very far if you deny his world by telling him he has no need to feel the way he *knows* he feels

Accept a Casualty's Limitations as Real—When a man's thigh is shattered, no one (including the patient) expects him to walk for a time When a man's ability to cope with his feelings is shattered, many (often including the patient) are inclined to expect him to function normally again almost immediately "It's all in your head" "Snap out of it" "Pull yourself together" Such goading, scolding types of "reassurance" have no place in psychological first aid The casualties you meet will not *want* to feel as they do They will want to be as effective as possible, but their feelings of incompetence or overconfidence are real and often disabling It will be your job to help them regain as much effectiveness as they can as rapidly as they can This is best done by accepting the handicaps they present, and by helping them rediscover quickly a few of their assets which they can use at once

In doing this, you must at all costs guard against a very common human tendency in yourself Especially when you are as fatigued and as frustrated as you may well be in the midst of a disaster, you can easily begin to resent intangible disabilities in those around you Physical wounds you can see Anxiety in others is harder to recognize After all, you will feel, you have managed to get yourself passably well reorganized Why cannot others? Why do they need your help to do for themselves what you believe you have managed independently for yourself? Again you need to recall that the same experience can have vastly different meanings for different people Even though you may be able to restore some semblance of order in your private world fairly rapidly after a disaster, others may well find the job far more complicated They deserve your understanding help—not your resentment—in response to their very real needs

Size up a Casualty's Potentialities as Accurately and as Quickly as Possible —While you are making allowance for a disturbed person's limitations, you should be on the lookout for skills and other assets you can revive and utilize A very upset person can easily cause you to forget that he *could* be of real assistance to you as well as to himself, if you can help him get started on the way toward reorganizing his world Inquire gently into what happened to him Let him reply in his own way You cannot let him ramble on endlessly, but even a couple of minutes in which he can talk freely of his own experiences will relieve remarkably some of his feelings of despair and helplessness Find out if a casualty is particularly concerned about family or friends Give him as honest an estimate as you can of where, when, and how he may reasonably expect to make contact with those who are dear to him If he is too depressed to talk easily, some statement of what *may* have happened to him (based on your general knowledge of the disaster) can increase his confidence in you to the point where he can talk a bit

Brief questions about his normal occupation may give you some clues to his interests and basic abilities For example, a man with manual skills can be asked to help you straighten up the immediate area where you are trying to do your job A man with some clerical background may be of great assistance in simple jobs involving messages or records For many persons who have been overwhelmed emotionally, work which can be done almost automatically and by rote can be the first step back toward normal effectiveness

It is surprising how close you can get to a person under disaster conditions in a short time Be warmly interested but not enveloping or maudlin Treat him as a potentially valued member of your disaster team Show your respect for him as sincerely as you can Help him to find a way to utilize his skills as quickly as possible

Accept Your Own Limitations in a Relief Role — Do not try to be all things to all people There will be much you would like to do in a disaster beyond your strength and skill You cannot be all things to all victims Consequently, you must establish a set of priorities in your thinking about what you will allow yourself to undertake Your first responsibility will be to whatever emergency job you have previously been assigned In theory, this may well be a full time job, but in practice, you will be under pressure to do some of the jobs assigned to others who may themselves be casualties Here you must know yourself *quite well to judge accurately what would be worth* your trying and what would be a total waste of time You will naturally extend yourself to the limits of your capacities Be as sure as possible that you do not push yourself beyond those limits, lest you become as ill as those who need your help

A reasonably candid appraisal of yourself is a very important part of your preparation for psychological first aid. A physically injured first-aid worker may continue to do a good job of dressing the wounds of other casualties But if you are emotionally "wounded" yourself, you will be greatly handicapped in providing help for others with emotional difficulties In other words, know your own weaknesses well enough to handle them quickly in time of crisis

It should be clearly understood that in a community-wide disaster you yourself could be as subject to personal anxieties as less formally trained workers Your training should prepare you to handle your own emotional problems *first—and promptly For example, your natural* concern about the plight of your own family and friends should be anticipated so consciously and fully that you will not find yourself suddenly and unexpectedly bogged down by these concerns when disaster strikes If you have done your best in advance to provide protection for your family, your feeling of personal responsibility for them will be less (See "HOME PROTECTION EXERCISES —A Family Action Program," published by the Federal Civil Defense Administration) During training, your annoyances at imperfections in the disaster plans should be worked through fully enough so that in time of crises you do not find yourself overwhelmed by a flood of resentment at "the authorities" because they have not given you everything you feel you should have had to help relieve suffering

You should examine carefully certain trends in your own "normal" behavior Are you impulsive? Are you easily angered? Are you a bit more sensitive to criticism than the average person? Are you inclined to store up resentments instead of expressing them wisely and effectively? Do you tend to judge people according to their race, religion, or other group affiliation instead of as people? Are you prone to make promises beyond your actual strength and capacities because you cannot bear to say "No"? None of these characteristics may have caused you any serious grief thus far In the midst of a disaster, any one of them could trip you up badly if you are so unaware of their presence that you have never developed any ways of modifying them

The training you receive as a disaster worker will in itself protect you somewhat in time of stress Experience in real disasters, such as fires, floods, and tornadoes, will make the value of your training much more significant to you Knowing how to do an important job well is a widely recognized antidote for many types of anxiety

Nevertheless, regardless of how thoroughly you are trained, it would be unwise to assume that you will be completely immune to all personal disturbance if the community you know should be torn apart suddenly by some tragedy such as an atomic explosion Hence your first job in psychological first aid is to look to your own *defenses If you understand yourself reasonably well,* you may justifiably hope to endure and control your own anxieties in the midst of a community-wide disaster

Summary—To sum up, the basic principles of psychological first aid concern ways of establishing effective human contacts with disturbed, overwhelmed persons who have lost touch to some degree with the world as it is Once such contacts are made, it becomes reasonably easy to help many of these people to take an active, contributory part in the simpler phases of emergency activities Devastating as a catastrophe may be, the very needs it creates can be an asset to psychological first aid Unlike ordinary life, a disaster engenders more urgent jobs than there are people to do them Opportunities to regain self-respect and self-confidence are correspondingly greater Psychological first aid can help many emotionally disturbed victims to take advantage of these opportunities and thereby get back into their stride

SOME PRACTICAL SUGGESTIONS

Your successful application of these general principles requires practice Just as you need active disaster experience to learn more about yourself when you are under stress, so such experience is the only means by which you can really learn the value of the principles that have been discussed Nevertheless, some examples of how these ideas may be applied to the chief categories of reactions previously described should be mentioned

Normal Reactions to Disaster—Obviously little or no help from you is required by the persons who remain calm and effective in the face of emergency, even though they may experience rather transient symptoms, such as nausea, sweating, or other normal reactions to stress A word of sympathy and encouragement in passing can be well worth while, but it will be important (as well as necessary[1]) for you to assume immediately after the impact of a disaster that *most* of the surviving casualties can regain at least some control of their emotions if given a little time to do so The course of the reactions will soon make it clear which persons are becoming actually disabled by their disturbed feelings and which are having reasonable success in overcoming their initial internal turmoil Subsequent events may alter the situation in particular people, but a good general rule to follow is that psychological first aid is necessary only for those persons who are manifestly losing control of themselves or are making no perceptible progress toward resumption of effective behavior

Individual Panic (Blind Flight)—These cases will respond least to the application of the general principles that have been presented Physically, these individuals will be so explosive in their behavior that you will have difficulty even in getting their attention They will be disturbing to all about them, and they may very easily provide the nucleus for development of a general panic Consequently, their early segregation and control is urgent How you can attain these ends will depend largely on the facilities available to you Gentle firmness should be tried first, but if this fails, get two or three others to help you take these casualties to the nearest medical aid station you can find in operation Should you attempt this forcefully by yourself, the casualty will almost certainly break away from you and become even more disturbed

If you find yourself isolated for any great length of time from all medical facilities, it would be wise to ask two or three fellow workers to remain with the person in panic until help arrives In such an arrangement, physical restraint may have to be used for a time, this restraint should be firm but not brutal or punitive The widespread belief that a casualty in panic can be jolted out of his confusion by slapping him in the face, by dousing him with cold water, or by other forms of abuse is unsound Such tactics may interrupt the disorganized behavior, at least briefly But in the midst of disaster tensions, striking a disturbed casualty will not only fail as a rule to control his panic but will greatly increase the anxiety of those around you who may feel on the verge of similar panic themselves

With regard to your being justified in restricting two or three people to the temporary care of a single casualty, it should be emphasized that panic spreads easily The prompt control of people who are becoming panicky will go far to offset the great dangers inherent in the development of such behavior in large numbers of people

Depressed Reactions (Slowed Down, Numbed)— It is with these persons that you may hope to get the best results by the methods which have been suggested in this manual A relatively short time spent with each of them, or even with a number of them gathered in a small group, will bring out desirable responses in many As they sense your constructive interest, their private worlds no longer seem quite so desolate to them, and your individualized suggestions for simple, routine jobs they might undertake will have a chance of making a useful impression Some will naturally respond more quickly than others, and your own limitations in time and energy will obviously prevent your working very long consecutively with any one of them Nevertheless, if you can help even a few of them to begin functioning again, others will tend to rouse themselves and will be more amenable to suggestions when you can spare a few moments for *them* A casualty may at first show no sign of response to you Yet he will be forming at least vague opinions of you as a person, and his later reactions to you will reflect the quality of his initial impressions

Elderly people and children who are victims of a disaster present many special problems This is not the place to discuss the long-term phases of these problems From the standpoint of psychological first aid, however, the methods just described will be reasonably effective with both the aged and the very young casualties Older persons will tend to become more confused in a disaster than the young or middle aged, and hence cannot be expected to respond to understanding care as quickly or as well the younger group The reaction of children, on the other hand, will often reflect the attitudes of the adults around them, and calm, realistic assurances will go far toward helping them recover some equanimity It is obvious that both the aged and the children should be given as much quiet supervision as possible during the chaotic period immediately following a disaster

Overly-Active Responses—Here again, as with the panicky persons, you may at first have trouble just getting the attention of the overly-active group Unlike the panicky persons, however, they will establish a flighty sort of contact with you which will give you some opportunity to indicate your interest in helping them become useful Under proper supervision, which will compensate somewhat for their great distractibility, these persons can gradually attain a reasonable degree of composure Their need for physical activity will be considerable, so that jobs such as moving rubble or rescuing casualties would have value for them

Since these persons feel much confidence in themselves, they may cause serious trouble They will be inclined to criticize what they regard as the stupidity of authority in general, and may well be outspoken in their resentment of some person or group whom they blame for the disaster Like panic, such "scape-goating" attitudes are extremely contagious in disturbed situations If they are allowed to spread, they can lead to a very serious crisis

Hence every effort should be made to dissuade them from destructive expressions for the moment and to encourage them to devote their excessive energies to cleaning up the mess at hand There is no need to argue the rightness or wrongness of their views, there may even be some actual basis for their resentment It is far more important to make clear to them, as diplomatically as you can, that once a disaster has occurred the urgent need is for such repair of the damage as may be possible Responsibility for the disaster can be considered later

Bodily Reactions —You should not find it difficult to talk calmly with this type of casualty It will probably be impossible for you to relieve them of their bodily disturbances immediately, whether they be of the type represented by nausea, vomiting, or weakness, or of the type represented by hysterical blindness, deafness, or paralysis It is important, however, to make them feel your interest in them as individuals You may then be able to find a number of small jobs which they can do in spite of their symptoms By thus by-passing their disability to some degree, you may help a number of them to regain their composure gradually, while waiting for medical help

SEDATIVES—A LAST RESORT

Do *not* administer sedatives to psychological casualties except as a *last resort*, and even then consult a physician, if possible, before you do so The psychological casualty does not think clearly However calming a sedative may be, it will inevitably add to his confusion and make him even more inaccessible to the methods of treatment which have been described.

You may wonder whether in some instances, such as a wildly panicky reaction, it would not be simpler and better to put the casualty to sleep with a sedative until medical help arrives Unfortunately, so seriously disorganized a person usually requires very large and dangerous doses of sedatives to be put to sleep It is not uncommon to see a paradoxical response in which a disturbed person becomes even more excited when given large doses of a drug which usually has a sedative effect. Consequently it is far better to rely on the approaches already discussed in attempting to help the casualty with emotional disabilities Should you be forced to use sedation, make doubly sure that the casualty is clearly tagged with a record of any medicine you have given him and of the time it was given Otherwise, if he is still disturbed, you or someone else may later give him more sedation that could be fatal in combination with the first dose

IF YOUR BEST EFFORTS FAIL

The problem remains of dealing with those disturbed casualties who continue unresponsive to your best efforts It has already been pointed out that the actually panicky casualties may need to be brought under trained medical care as promptly as possible The depressed and those with severe bodily reactions who you cannot reach are less urgent cases They may be handled in groups, temporarily, in first-aid stations, mass care centers, or in improvised hospitals They should also be brought under medical care as soon as possible While they are waiting, their physical needs (warmth, food, protection from further danger) should be met Those in the overly active (not panicky) group, who will pay no attention to you, may have to be tolerated until their dashing about seriously disrupts the work of others It may then be possible to persuade them to join those awaiting medical attention on the grounds that they are overworking themselves and seem to be in danger of collapsing If this face saving approach fails, more drastic measures, similar to those recommended for control of panicky people, may have to be used

MASS PANIC

Chief consideration has been given in this manual to the recognition and care of emotional problems in *individual* disaster victims The emotional disturbances of large crowds may also become a serious burden in any disaster Although the forces involved in these group reactions are related to the forces in the disturbed individuals, the handling of them requires controls and techniques of leadership beyond the measures for dealing with individuals discussed here

Nevertheless, as you learn and apply the principles of sound psychological first aid, you will contribute tremendously to the prevention of crowd activity which, should it get under way, may easily become impossible to control by the most effective leaders Your success in restricting the influence of one panicky person may very well be the chief reason why his less disturbed associates turn to constructive activity instead of rushing off blindly to their own destruction Deft control of a single overly-active, resentful person who seems bent on punishing the scapegoats he holds responsible for a disaster, can do more to avoid the horrible results of riots than all the efforts of troops or police who might have to quell a mob determined to vent their anger on some official or on some minority group

Community leaders, as well as military and police personnel, have quite enough to do during any disaster without having to exhaust themselves in efforts to control disorganized mob activity With the proper use of psychological first aid, you can do much to spare them this additional burden

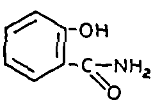
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies A copy of the rules on which the Council bases its action will be sent on application

R T Stormont, M D , *Secretary*

Salicylamide —C-H-NO$_2$—M W 137 13—The structural formula of salicylamide may be represented as follows



Actions and Uses—Salicylamide, the amide of salicylic acid, shares the actions and uses of acetylsalicylic acid (aspirin) Its analgesic potency is no greater and may be somewhat less than that of aspirin Its antipyretic and anti-inflammatory or antiarthritic properties are not superior to those of aspirin The over-all incidence of gastric intolerance to salicylamide is about the same as, or a little less than, that to aspirin, however, patients allergic to aspirin have been reported not to be sensitive to salicylamide It can be used safely in place of salicylates whenever such medication is indicated

Salicylamide is readily absorbed from the gastrointestinal tract, but does not produce high salicylate levels in the serum It is diffused widely throughout the tissues, excreted chiefly by the kidneys, and apparently is not destroyed appreciably in the body Since the toxicity of salicylamide compares closely with other salicylates, it should be employed with the same general precautions The possibility of the development of sensitivity to salicylamide after its repeated use, particularly in patients already allergic to other salicylic acid compounds, should be kept in mind

Dosage—Salicylamide is administered orally, preferably after meals and with fluids to minimize gastric irritation The dosage should not be less than that for aspirin As a simple analgesic or antipyretic, single doses of 0 3 to 1 gm three times daily may be adequate, as an antirheumatic agent, doses of 2 to 4 gm three times daily (or 1 to 2 gm every four hours) may be prescribed, according to gastric tolerance, over periods of three to six days For children, correspondingly smaller doses should be employed

Tests and Standards—

Physical Properties Salicylamide is a white almost odorless crystalline solid m p 139 142° It is freely soluble in alkalis The approximate amounts that dissolve at 25° in the following solvents to form 100 ml of solution are 7 gm in alcohol, 1 gm in chloroform 3 gm in ether 5 gm in propylene glycol, and 0 2 gm in water Salicylamide is fairly stable to heat moisture, and light

Identity Tests Dissolve about 0 1 gm of salicylamide in about 5 ml of alcohol and add a few drops of ferric chloride T S a violet color develops *(presence of a phenol)*

Dissolve about 0 2 gm of salicylamide in 5 ml of alcohol, and add 15 ml of water To this solution add slowly and with shaking, bromide T S until a yellow color persists Allow the mixture to stand at room temperature with occasional shaking for 30 minutes, collect the precipitate wash with water, recrystallize from aqueous alcohol and dry in a vacuum over phosphorus pentoxide for 4 hours the compound melts at 183 185°

A 0 001% solution prepared as directed in the spectrophotometric assay for salicylamide exhibits ultraviolet absorption maxima at about 236 and 302 mμ [specific absorbancy E(1% 1 cm) about 302 and 548] and minima at about 224 and 263 mμ The ratio of the absorbancies at 236 and 302 mμ is 1 77-1 87

Purity Tests Dry about 1 gm of salicylamide accurately weighed, at 105° for 4 hours the loss in weight does not exceed 0 5%

Char about 1 gm of salicylamide, accurately weighed cool the residue add 1 ml of sulfuric acid, heat cautiously until evolution of sulfur trioxide ceases ignite, cool, and weigh the residue does not exceed 0 05% Save the residue for determination of heavy metals

Dissolve the residue from the sulfated ash determination in 23 ml of water, add 2 ml of diluted acetic acid, and run a *U S P heavy metals test* the amount of heavy metals does not exceed 20 ppm

Assay (Salicylamide) Prepare a 0 001% solution of salicylamide as follows Transfer to a 100 ml volumetric flask 0 1 gm of salicylamide, accurately weighed, fill to the mark with alcohol, and mix Transfer to a second 100 ml volumetric flask 10 ml of this solution, fill to the mark with alcohol, and mix Finally transfer to a third 100 ml volumetric flask 10 ml of this last solution, fill to the mark with alcohol, and mix. Spectrophotometrically determine the absorbancy in a 1 cm quartz cell at 302 mμ using alcohol as a blank The concentration of salicylamide in the solution in mg /ml ≃ absorbancy — 30 2 The amount of salicylamide is not less than 97 or more than 103%

Prepare an approximately 0 1 *N* sodium methoxide solution as follows Cut 3 gm of freshly cut sodium in small pieces, and slowly add to 75 ml of methanol After all the sodium reacts, add an additional 75 ml of methanol and 850 ml of dry benzene, and mix Standardize this solution thus Transfer to a 100 ml beaker, equipped with a magnetic stirrer and cardboard cover with a single hole for the buret tip, about 0 1 gm of benzoic acid, accurately weighed, and add 30 ml of freshly neutralized dimethylformamide containing a few drops of 0.3% solution of thymol blue in methanol Add the sodium methoxide from a 10 ml buret to a blue end point Store this standardized solution in borosilicate glassware protected against carbon dioxide and moisture Transfer to a 100 ml beaker, equipped with a magnetic stirrer and the same cardboard cover, about 0 1 gm of salicylamide, accurately weighed, and add 30 ml of freshly neutralized dimethylformamide containing a few drops of thymol blue *From a 10 ml buret, add the freshly* standardized 0 1 *N* sodium methoxide to the same blue end point Each milliliter of 0 1 *N* sodium methoxide is equivalent to 0 01371 gm of salicylamide The amount of salicylamide is not less than 98 or more than 102%

Dosage Forms of Salicylamide

Tablets *Identity Tests* Grind a number of tablets equivalent to about 1 gm of salicylamide, and triturate the powder with three 25 ml portions of ether Filter the ether extracts through a pledget of cotton, and evaporate the filtrate to dryness on a steam bath The residue responds to the identity tests for the active ingredient in the monograph for salicylamide

Assay (Salicylamide) Weigh 20 tablets, and powder them Transfer to a 100 ml beaker, equipped with a magnetic stirrer and cardboard cover with a single hole for the buret tip, an amount of powder, accurately weighed equivalent to about 0 1 gm of salicylamide Proceed as directed in the titrimetric assay for the active ingredient in the monograph for salicylamide starting with, "   and add 30 ml of freshly neutralized dimethylformamide   " Each milliliter of 0 1 *N* sodium methoxide is equivalent to 0 01371 gm of salicylamide The amount of salicylamide is not less than 95 or more than 105% of the labeled amount

The Bowman Bros Drug Company, Canton, Ohio

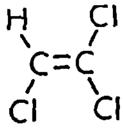
Hewett Tablets Salicylamide 64 mg

Tablets Salicylamide 0 3 gm

Chemo Puro Manufacturing Corporation, Long Island City, N Y

Powder Salicylamide Bulk, for manufacturing use

Trichloroethylene-U S P—The structural formula of trichloroethylene may be represented as follows



Actions and Uses—Trichloroethylene is a volatile liquid that produces prompt analgesia and anesthesia when inhaled Its action resembles that of chloroform but is more rapid and less potent It is suitable for inhalation as an analgesic agent only Anesthetic concentrations do not produce complete muscular relaxation and are associated with tachypnea and bradycardia, sometimes accompanied by extrasystoles These are signs of overdosage Tachypnea is a sign that the first plane of anesthesia has been reached and should be regarded as a warning that administration has exceeded the analgesic level With a suitable inhaler, self-administration under professional supervision is considered relatively safe for producing analgesia, usually without unconsciousness Patients may experience slight dizziness and numbness the first few minutes Irritation of respiratory passages (excessive salivation or secretion of mucus), nausea, and vomiting are infrequent If sufficient vapor is inhaled to produce unconsciousness, the mask automatically falls away from the face to prevent overdosage Consciousness usually is restored within 20 to 30 seconds Self-administration should not be permitted while the patient is alone

Trichloroethylene as an analgesic mixture with air or oxygen is useful in obstetrics during labor and for delivery in conjunction with pudendal block or low spinal anesthesia It also may be employed as an analgesic agent in minor surgical and dental procedures and in major operative procedures as an adjunct to light general anesthesia produced by other agents When this drug is administered with inhalation anesthetics standard anesthetic machines with a closed circuit may be used, provided they are adjusted so that trichloroethylene does not come into contact with soda lime If contact with soda lime occurs in closed apparatus, persistent trigeminal neuralgia and other cranial palsies may result from the formation of toxic degradation products (acetylene dichloride, phosgene, and carbon monoxide), formed by the interaction with soda lime

Until further experience is gained, trichloroethylene is not recommended for use in patients with severe cardiac failure, active cardiac disease, or toxemia of pregnancy It should never be employed for induction anesthesia Administration of epinephrine should be avoided whenever trichloroethylene is used

Dosage—Trichloroethylene is administered by inhalation by means of an inhaler device controlled by the patient or a mask or closed-circuit anesthetic machine controlled by an anesthetist Premedication can be carried out according to the preference of the physician During labor or for minor surgical procedures, 10 to 12 self administered inhalations from a suitable device are taken by the patient at the onset of pain When this agent is dropped on a mask or placed in a machine, a minimal concentration should be maintained at all times to avoid even the first plane of anesthesia Trichloroethylene is nonexplosive, it is not flammable when mixed with air, but may become so when mixed with oxygen When the latter mixture is used, there is risk of ignition especially when a cautery is employed In such instances, admixture with air is preferable Trichloroethylene is highly stable when stored in closed containers away from light However, to avoid possible oxidation it is inadvisable to retain any unused portion in an anesthetic machine such portions should be discarded Trichloroethylene may be heated without decomposition, but, when its vapor, diluted with air, is exposed to a naked flame, decomposition occurs giving rise to hydrochloric acid and traces of phosgene The agent or its vapor should not be allowed to come in contact with hot surfaces

Ayerst Laboratories, Inc, New York

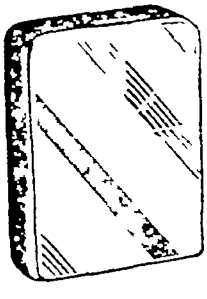
Trilene 6 cc ampuls and 30 cc bottles Stabilized with 0 01% thymol

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

APPARATUS ACCEPTED

The following additional products have been accepted as conforming to the rules of the Council on Physical Medicine and Rehabilitation of the American Medical Association for inclusion in Apparatus Accepted A copy of the rules on which the Council bases its action will be sent on application

RALPH E DE FOREST, M D, *Secretary*



Acousticon Hearing Aid Model A 300

Acousticon Hearing Aid, Model A-300

Dictograph Products Inc., 95-25 149th St, Jamaica 35, Long Island, N Y

The Acousticon Hearing Aid Model A-300 contains one transistor and two vacuum tubes and is powered by a mercury type A battery and a 22.5 volt B battery

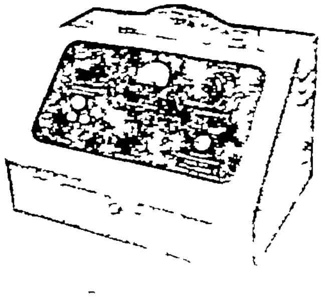
The body of the instrument measures 80 by 60 by 22 mm and weighs 121 gm With earphone, receiver cord, A-battery, and B battery, the total weight is 165 gm

Teca Portable Low Volt Generator, Model SP-2

Teca Corporation, 139 E 23rd St New York 10

The Teca Portable Low Volt Generator Model SP-2, provides a source of electric current for stimulating normally innervated muscle for stimulating muscle with damaged nerve supply for testing with respect to the reaction of degeneration, and for ion transfer The output is either a continuous direct current or an alternating current. The latter consists of square waves at frequencies up to 2,000 per second, these can be amplitude-modulated at the rate of 6 to 60 surges per minute

The apparatus is housed in a case with a carrying handle and a sloping front, it measures 26 (height) by 40 by 29 cm (10 by 15½ by 11½ in) and weighs 8 6 kg (19 lb) Packed for shipment it measures 30 by 45 by 35 cm (12 by 18 by 14 in) and weighs 10 kg (22 lb) It requires 60 cycle alternating current at 110 volts and draws 30 watts



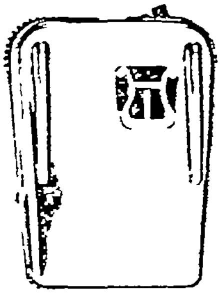
Teca Portable Low Volt Generator Model SP 2

Beltone Hearing Aid, Concerto Model

Beltone Hearing Aid Company, 2900 W 36th St, Chicago 32

The Beltone Hearing Aid, Concerto Model, is a tubeless hearing aid that contains three transistors and requires one 1 25 volt mercury cell The on-off switch and volume control are on one dial, the tone control is operated by a lever that has two settings

The Concerto line includes Green Dot, Yellow Dot, Red Dot, Black Dot, and Double Black Dot Models Their characteristics are summarized as follows



Beltone Hearing Aid Concerto Model

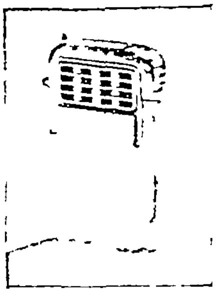
	Battery				
Model	Voltage	Capacity, Ma Hr	Drain Ma	Approximate Life Hr	Power Output Sound Pressure Level in Db Above 0 0002 Dynes/ Sq Cm
Green Dot	1.25	800	1.5	540	128
Yellow Dot	1.25	800	0.9	900	122
Red Dot	2.50	300	2.5	120	132
Black Dot..	2.50	300	2.5	120	134
Double Black Dot	2.50	300	5 0	70	137

The body of the instrument measures 72 by 53 by 16 mm and weighs 80 gm The earphone weighs 8 gm, the receiver cord 2 gm, and the battery 12 gm, making the total weight 102 gm

Sonotone Hearing Aid, Model 988

Sonotone Corporation, Box 200, Elmsford N Y

The Sonotone Hearing Aid, Model 988 is an electrical instrument containing three vacuum tubes and powered by one 1 25 volt A-battery and one 15 volt B battery It has volume and tone control and receivers for both air and bone conduction The body of the instrument measures 76 by 44 by 16 mm and weighs 68 gm The batteries earphone and receiver cord weigh 24 3, 7 7, and 2 8 gm., respectively, making the total weight 103 gm



Sonotone Hearing Aid Model 988

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AIR POLLUTION

Air pollution is a complex problem that has been growing since coal was first used. Disasters due to the exposure of communities to dense smog for several days have focused public attention on the importance of control measures. In the latest such disaster, in December, 1952, in London, the concentration of smoke in the air reached 4.46 mg. per cubic meter, and that of sulfur dioxide reached 1.34 ppm.[1] Although heavy industries discharge vast quantities of smoke into the air, coal burning railroad engines, motor vehicles, and furnaces from private homes and apartment buildings are also important sources of air pollution.

While most persons recognize air pollution as a nuisance, the determination of concentrations of various pollutants necessary to be definitely injurious to health is a far more difficult matter. The chief effects noted are irritation of the upper respiratory tract and conjunctiva. In this problem the effects of exposure to high concentrations of pollutants for a short period and the effects of prolonged exposure to low concentration are usually studied. The latter is especially difficult to evaluate. The maximum allowable concentrations of various pollutants in a community can best be determined by studying their effects on a more limited scale in industrial workers subject to daily exposures to polluted air.[2] In order to establish a causal relationship between disease and exposure it is necessary to show that "(1) a toxic effect has occurred, (2) a pollutant capable of causing this effect is (has been) present, (3) there is (has been) an excessive exposure to the pollutant, and (4) other causes of the toxic effects do not exist."[3]

In attempting to get remedial measures adopted it is well to reinforce hygenic arguments with other, more purely economic, arguments, such as toxic effects on grazing animals in some areas, reduction in agricultural yield, discoloration and disintegration of stone, mortar, and metals of buildings, increased cleaning and illumination costs, and loss through dispersion of valuable by-products.[1] Residential districts should not be built in the direct line of the prevailing wind from a heavy industry. When the wind is found to blow heavy smoke from a plant toward such sections or when atmospheric conditions favor smog, extra controls in the form of filtration or partial shutdown should be applied. Industries should especially avoid locating in narrow valleys subject to frequent stagnation of the air by having meteorological surveys made of proposed sites.

That something can be done about air pollution has been amply demonstrated in Detroit,[4] Los Angeles,[5] and other cities. In 1947 Detroit organized a control program. As a result, the average horizonal visibility has been greatly improved and fly ash no longer accumulates along curbs and in doorways. In Los Angeles it is estimated that over 600 tons of air pollutants per day formerly dispersed over the city are now withheld from the air, 360 tons of sulfur and 100 tons of gasoline are reclaimed daily, the sulfur dioxide content of the air has been reduced 50%, and the average visibility has been increased. These improvements have resulted from a large outlay in time and money by the community and industries, but they have been worth the cost.

Increased populations, technological changes in industry, and the use of new products give rise to new community problems faster than the old ones can be solved. No complete solution to the problem of air pollution can be expected, but there is a great need for those cities that have not yet done so to clean up their air. Other cities have shown that it can be done.

COLD INJURY

Although military operations are attended by the greatest incidence of cold injury, many persons in civil life may be suddenly exposed to frostbite or immersion foot as a result of a cyclone, flood, or occupational hazard.[1] The danger is increased if the person exposed has an appreciable degree of peripheral arteriosclerosis. In the production of tissue damage, it was formerly believed that the associated vascular changes were secondary to the cold injury, but it now appears that the tissue damage is secondary to such vascular changes as vasoconstriction, vasodilation, sludging of blood, and thrombosis. The feet are especially vulnerable because of their dependent position. The damage may be aggravated by immobility, which favors sludging of the blood, as well as by walking. That the exact pathogenesis of cold injury is complex and not fully understood is shown by the fact that some animals can hibernate without incurring cold injury and certain tissues can be refrigerated and later used as grafts.

There is a pronounced difference in the ability of different persons to withstand exposure to cold and in the same person at different times. In addition to the temperature and duration of the exposure, the humidity and wind velocity enter into the picture. Advanced age, especially in the presence of peripheral vascular disease, poor general physical condition, high cold agglutinin titer, belonging to a dark skinned race, and having had a previous frostbite decrease resistance to cold injury and should be taken into account in any effort to prevent such injury.[2] It is estimated that only about 50% of those who incur cold injury had warning symptoms of sufficient severity to attract attention These patients may complain of feeling cold, stinging pain, and numbness in the involved part Some of these patients, believing their feet to be asleep, pound them or hop on them "to get the circulation started" This trauma increases the ultimate tissue damage Unfortunately, others remove their shoes to obtain relief and then because of swelling are unable to get them on again, so that greater exposure occurs Exposure to cold in high altitude flying is accompanied by anoxia This also aggravates the injury

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[1] Doyle, H. N.: Polluted Air, a Growing Community Problem, Pub. Health Rep. 68: 858 (Sept.) 1953.

[2] Princi, F.: Public Health Aspects of Atmospheric Pollution, Am. J. Pub. Health 44: 206 (Feb.) 1954.

[3] Phair, J. J.: Epidemiology of Air Pollution, read before the Symposium on Air Pollution sponsored by the Instrument Society of America, Philadelphia Section, Philadelphia, Nov. 19, 1952.

[4] Linsky, B.: Air Polution and Man's Health, Pub. Health Rep. 68: 870 (Sept.) 1953.

[5] Larson, G. P.: Air Pollution and Man's Health in Los Angeles, Pub. Health Rep. 68: 872 (Sept.) 1953.

[1] Pratt, G. H.: Frostbite Therapy, J. Am. Geriatrics Soc. 2: 305-316 (May) 1954.

If the circulation is not irreparably damaged the tissues will regenerate very well, but clinical evaluation of any form of treatment is made difficult by the fact that examination of the recently injured part at the time treatment is started gives no clue of the extent of the injury For this reason Isaacson and Harrell[3] studied 33 patients who were believed to have had bilaterally equal injury They performed a unilateral sympathectomy so that each patient was his own control The aim of treatment is to prevent gangrene, but in their series there was no significant difference in the extent of the gangrene or amputation required between the treated and the untreated side They concluded that sympathectomy is useful only in the treatment of late sequelae (healing chronic ulcers, relieving paresthesias, or improving circulation)

In the emergency phase of treatment there was some difference of opinion as to the relative merits of slow rewarming and rapid rewarming As the result of animal experimentation rapid rewarming is now generally accepted as the method that will result in the least gangrene, but there are still some differences in the details of the technique advised. Because water is a better conductor than air, rapid rewarming should be accomplished in a water bath Russian investigators[4] warned against using bath temperatures higher than 98 6 F, but Gottschalk recommends a temperature of 108 F[5] Pruitt[6] recommends a temperature of 86 to 89 F and warns against temperatures of 100 F or over A more accurate determination of the optimal temperature of the rewarming bath could be arrived at by using a controlled series such as that reported by Isaacson and Harrell All agree that massage should be avoided Once the part has been rewarmed it should be left exposed in cool surrounding air at 70 to 78 F Pressure dressings and the application of ointments are to be avoided. Because smoking causes vasoconstriction it should also be avoided.

Some authors favor the use of heparin to prevent thrombosis, provided there is no evidence of bleeding, but others believe that it is of doubtful value and that it adds an unnecessary risk. If it is used, it should be given early in the course of treatment.[5] Vasodilators have not been shown to be of value, except possibly in patients who show signs of sympathetic overactivity during recovery Corticotropin, cortisone, and rutin have not been found to have any favorable effect Pratt[1] advocates the use of procaine intravenously for pain, but Gottschalk states that such drugs as meperidine are safer and easier to administer Bed rest is necessary to prevent trauma until the bullas have dried The surgical treatment should be ultraconservative because when the necrotic tissue has sloughed off there is usually much less loss of tissue than was anticipated Some grafting may be required, but amputation should be used only when spreading infection endangers the patient's life

Great strides in our understanding of cold injury have been made since the days when such injuries were rubbed with snow Recent military campaigns have provided ample material for observation and have helped to clarify some of the points of major controversy

RENAL TRAUMA IN PROFESSIONAL BOXERS

Physicians who are attracted to the numerous telecasts of boxing prowess that are indigenous to the American scene may have wondered about the severity and extent of renal injury sustained by professional boxers An answer is partly supplied by a recent study by Amelar and Solomon[1] on 103 professional boxers who fought at the Madison Square Garden and at St. Nicholas Arena in New York City during 1952 and 1953 A freshly voided specimen of urine was collected from each boxer on the day of the fight and examined within an hour After a bout, another specimen was obtained from each boxer within 5 to 20 minutes Each specimen was examined for color, turbidity, specific gravity, pH, glucose, albumin, and acetone, a detailed microscopic examination of the sediment was also made In 46% of the fighters the urine, which was clear before a bout, became turbid afterward Albumin, not present before the bout, appeared in 68% of the urinary specimens after the pugilistic encounters Traces of acetone appeared in the urine of 14% of the boxers, urinary specific gravity increased in 80%, urinary pH decreased in 39%, and glucose appeared in 9% Significantly, microscopic examination showed that in 73% of the urine specimens red blood cells appeared immediately after a bout, while 26% of the boxers had granular or hyaline casts in the postcombat urine According to the authors, red blood cells and casts are not found in the urine of persons engaging in strenuous exercise, although various investigators have reported that exercise produces a decrease in urine volume, a reduction in renal plasma flow and filtration rate, a decrease in the chloride concentration, and an increase in urinary acidity, ammonia, and phosphates Strenuous exercise can cause albuminuria

From this study it appears that the effects of acute renal trauma sustained in professional pugilistic bouts can be determined in part by appropriate urinalysis Acute renal trauma is revealed by the findings of red blood cells, casts, and a high percentage of albumin The door remains wide open for further study of other aspects of the problem, such as the question of the effect of repeated injury to the kidneys on renal function This might be done on a group of boxers who are retired An immediate application of this study is the suggestion that a boxer who has sustained renal punishment should not be allowed to fight until his urinary findings are normal

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[2] Orr K D., and Fainer D C. Cold Injuries in Korea During Winter of 1950-51 Medicine 31 177 220 (May) 1952.

[3] Isaacson N H and Harrell, J B The Role of Sympathectomy in the Treatment of Frostbite Surgery 33 810-817 (June) 1953

[4] Brandstadt, W G Frostbite Mil Surgeon 107 356-358 (Nov) 1950

[5] Gottschalk, C W Frostbite Mod. Concepts Cardiovas Dis 22 202 205 (Dec.) 1953

[6] Pruitt, F W Management of Frostbite in the Korean War Nebraska M J 39 3-8 (Jan) 1954

[1] Amelar R. D and Solomon C. Acute Renal Trauma in Boxers J Urol. 72:145 (Aug.) 1954

ORGANIZATION SECTION

CIVIL DEFENSE

Following is the first section of the third and last of a series of articles on medical civil defense plans that have been prepared for the state of Maine These plans are being published as samples for those states that have not as yet completed this phase of medical civil defense planning

Plans for Special Weapons Defense Part III
Chemical Agents Defense Plan, Section 1

Adequate measures for safeguarding the civil population against the direct effects of modern war must become an essential part of any state civil defense organization if the nation is to survive in this age of fast, long-range jet bombers and supersonic guided missiles It is just as necessary that these preparations for civil defense be made in time of peace as it is that the armed forces be maintained in a state of readiness at all times Furthermore, any up-to-date, well-balanced plan for effective civil defense must take into account all the various weapons that might be available to an enemy It is imperative that a proper balance be held between the likely and the possible special weapons Civil defense agencies must be prepared to deal immediately with all probable types of attack but should be especially alert to those types that could inflict heavy damage to life and property from a long range Among these are attacks by air with the newer agents of chemical warfare like the nerve ses or, possibly, with mixtures of the older types of vesicants the newer nerve poisons The Germans had a large quantity he nerve gas "Tabun" on hand at the end of World War II at they had never used against the allied armies or their civilian population centers The Russians are known to have captured several hundred tons of nerve gas and to have taken over the German nerve gas production centers and most of the scientists who were familiar with the manufacture of these new chemical agents Therefore, it must be assumed they know as much about this new group of chemical weapons and their potentialities as does our own Armed Forces Special Weapons Division Neither the United States of America nor the Union of Soviet Socialist Republics was a signer of the Geneva Gas Protocol of 1925, hence, the United States has at present no signed agreement with any nation guaranteeing that chemical warfare agents will not be used against us in the event of war The fact that gas was not used during the last war might well increase the possibility of its future use in the hope of achieving the surprise on which the success of any gas attack largely depends Large bomber and fighter airfields have been built and activated within this state beside one of our largest cities and two of our medium-sized towns Any attack on these military targets with nerve gas could subject much of our civil population to the lethal effects of these new chemical agents, if the wind were blowing from the airfield toward the urban center Furthermore, nerve gas bombs might be jettisoned onto other cities during an enemy air raid if their bombers were closely pursued by our fighters Hence, the Maine civil defense authorities are agreed that gas warfare is still one of the risks that the civil population of this state must be immediately prepared to face and that chemical defense training must be instigated and provisions made for providing protection, equipment, and supplies for use by the detection and decontamination units, as well as for the civil population in certain urban centers

The chemical defense organizational and operational plan prepared for Maine closely follows that devised by the armed forces of the United States since World War II It will be presented in two sections Organization and operation of detection units and specific detection procedures are outlined below, the organization and operation of decontamination units and specific decontamination procedures will comprise the second section of this chemical defense plan Any plan for defense against chemical warfare agents may have to be altered from time to time, hence, only basic organizational and operational procedures are outlined in essential detail, and these will need to be supplemented as additional material and information become available

RECOMMENDED TABLE OF ORGANIZATION AND EQUIPMENT

Chief of Section—An Assistant State Deputy (Chemical) Director #3 to serve as "Chief," Chemical Defense Section, whose duties will be as follows

1 Responsibility through the "Chief," Special Weapons Division, to the State Deputy Director #3 for (*a*) organization of a State Advisory Panel and presiding at the meetings, (*b*) preparation of a State Chemical Defense Plan, after consultations with the State Advisory Panel and the Chief of the Special Weapons Defense Division, (*c*) organization and training of the required number of high-level chemical detection units to be located at the state university, the three Maine colleges, and strategically located, large industrial plants within the state, (*d*) preparation of a questionnaire listing dangerous chemicals, to be sent to all plants in the state to determine the number and quantities of such hazardous chemicals on hand at each mill or plant, (*e*) preparation of a set of field and high-level laboratory tests for the identification of chemical warfare agents, after consultations with the State Advisory Panel and the Chief of the Special Weapons Division, (*f*) organization and training of special weapons decontamination units as required at strategically located industrial plants and mills throughout the state, after consultations with the chiefs of the Radiological and Biological Sections and the Chief of the Special Weapons Division, and (*g*) preparation of the specific chemical decontamination procedures to be carried out by the special weapons decontamination units

2 Advising each county civil defense director and his #3 deputy director and the chief of the latter's chemical defense section in regard to the number and location of chemical detection and special weapons decontamination units required in said county

3 Prescribing the chemical defense training schedule to be followed by detection and decontamination units organized at the regional, county, or local levels

4 Working closely with the chiefs of the Biological and Radiological Sections and the Chief of the Special Weapons Division with a view to working out a well-coordinated and carefully integrated special weapons defense plan and organization for the entire state

State Advisory Panel—This group will

1 Consist of professors of chemistry of college or graduate-school level and selected research and analytical chemists from large industrial plants

2 Operate under the direction of the Chief of the Chemical Section

3 Assist the Chief of the Chemical Section in working out chemical agent identification and decontamination procedures and techniques to be used by the chemical detection and decontamination units

4 Help establish at strategic locations, preferably at the colleges or in the industrial laboratories, facilities for the identification of unknown chemical agents that might be used against our military targets and industrial centers in war

5 Assist with the organization and training of the regional chemical detection units described below The members of the panel may, if they choose, join these units for training and during emergency operations Furthermore, members should assist the county and local chemical defense chiefs with the training of lower-level detection and decontamination units organized within their respective regions

Chemical Agents Detection and Reconnaissance Units—These units are organized as follows

Senior Chemical Officer—State and Regional Professors of chemistry from the university and from each college have been designated to direct the formation of chemical detection units in the vicinity of their respective schools and to assist in the training of the personnel assigned to each such unit The senior chemical officer and the members of his unit will be under the direction of and responsible to the Assistant (Chemical) State Deputy Civil Defense Director #3 Research or analytical chemists from large mills or industrial plants have been designated to organize chemical detection units and decontamination units in their respective mills or industrial plants These unit leaders will serve as regional senior chemical officers and will be under the direction of and responsible to the Assistant (Chemical) State Deputy Civil Defense Director #3 These regional chemical agent detection and reconnaissance units may be attached to the nearest state mobile battalion for transportation, messing and billeting during actual operations in an emergency certified by the governor of the state

Senior Chemical Officer—County or City An instructor in chemistry or an industrial chemist should organize and train chemical and bacteriological detection units at the county and town levels where such units are required. This officer should be responsible to the County or City Deputy Director #3 for developing and promoting the chemical and bacteriological detection program at these lower levels

The composition recommended for chemical and bacteriological identification and reconnaissance units is as follows

State and Regional Units Under State Direction

Chemist (1)		Chemists (2)
Bacteriologist (1)	OR	Chemical assistants (2)
Chemical assistants (2)		Decontaminator (1)
Decontaminator (1)		Driver loader (1)
Driver loader (1)		

County and City Units Under Local Direction

Chemist (1)		Chemists (2)
Chemical assistant (1)		Chemical assistants (2)
Bacteriologist (1)	OR	Decontaminator (1)
Bacteriological assistant (1)		Driver helper loader (1)
Decontaminator (1)		
Driver helper loader (1)		

Duties of the Field Detection Units—The first duty of field detection units after an enemy attack should be to confirm the presence or absence of war gases in suspected areas and to report the type of gas used and the extent of the contaminated areas to the control authority as soon as possible Wind direction and the rate of spread of vapor gases should also be determined and Civil Defense Headquarters informed All contaminated areas must be marked off Persons in contaminated areas at the time of the attack must be brought out of the gassed area as quickly as possible, first aid procedures instigated promptly, and the badly gassed persons evacuated to medical installations for treatment All persons must be evacuated from the downwind section adjacent to gassed areas Unauthorized persons must be kept out of the danger areas until suitable decontamination procedures can be completed

Field detection teams must provide the high level detection units with samples of air containing the vapor form of unknown war gases A description of the apparatus and the techniques to be used in collecting contaminated specimens appears below The field detection units must collect samples of contaminated solid or liquid materials to be sent back to the high level units for more detailed testing and analysis

Methods and Equipment for Detection Units—A chemical agent sampling kit will be needed that should contain several empty screw-cap sample bottles a scoop, long medicine droppers rubber gloves blotting paper, cotton toweling and a notebook and pencil The apparatus contained in this kit will enable the unit in the field to take samples of solid chemical agents suspected of being in the soil, on vegetation or on hard surfaces Each detection unit should carry one combustible gas indicator, similar to that made by the Davis Emergency Equipment Co Inc Newark N J, for the detection of inflammable gas mixtures This equipment is necessary for the protection of unit personnel when they are obliged to enter areas where gasoline benzol, turpentine etc, may have been liberated or buildings where gas mains may have been broken, releasing city gas or commercial gas in explosive concentration

The members of the gas detection units should always approach every area suspected of gas contamination with great care and with all senses alert It is one of the most fundamental duties of all concerned with detection and reconnaissance not to get themselves contaminated or become casualties, through carelessness If they do, they are unable to carry out their particular task and at the same time will put a still further load on the medical services Detection personnel should try to keep upwind of contaminated areas except for that actually being investigated at the moment A continuous watch must be kept on the direction of the wind in the vicinity and the position of any other gas incidents previously reported should be borne in mind The nonpersistent gases or particle clouds will be difficult to collect in most instances because this vapor or cloud will probably be dissipated before the field detection unit can reach the gassed area However, an attempt can be made to collect samples by placing unimpregnated silica gel granule detector tubes in either the Andrews (fig 1) or the Bournique (fig 2) gas detection apparatus and drawing specified quantities of the contaminated air through the collection tubes Vapor from an agent of low volatility can be concentrated by placing a can or box over the liquid for a few minutes which allows time for sufficient vapor to collect inside the container Then a small hole should be made in the container, and the funnel at the distal end of the collecting tube attached to the collecting apparatus should be placed over the hole and the contaminated air drawn up through the silica gel collecting ampul Samples of air suspected of containing war gas vapor should always be taken on the downwind side but close to the source of contamination, such as a shell hole or an object suspected of being contaminated

CHEMICAL AGENTS DETECTION PROCEDURES

The development of the extremely potent new group of almost odorless and colorless nerve gases—Tabun Sarin and Soman—by the German chemists prior to and during World War II has rendered obsolete many of the older war gases and has necessitated a radical revision in recommended detection methods Chemical tests for the war gases must be relied on instead of the senses of smell, sight and touch Great stress must also be placed on keeping a careful watch for the sudden appearance of any of the following symptoms among persons out in the open immediately after any possible enemy attack (1) pinpoint pupils with difficulty in focusing on near objects, (2) acute frontal headache, (3) running nose, (4) an asthmatic feeling of choking and tightness in the chest accompanied by cyanosis and severe bronchial spasm that obstructs both inhalation and exhalation, (5) nausea and vomiting, (6) mental confusion and loss of consciousness, and (7) convulsions and death These clinical effects on exposed persons will likely be the first and best indication that nerve gas has been released in the area, since no simple, quick chemical test for the satisfactory initial detection of nerve gas has yet been made known However reliable chemical detection tests and practical detection sets will be required for detecting persistent vesicant and nerve gases in liquid form and for determining when the volatile forms have become sufficiently dissipated by the wind to permit personnel to enter areas without gas masks and protective clothing Until our enemies establish military bases on the North American continent, it would seem that civil defense against chemical attack could for practical purposes be reduced to detection methods for nerve gases however it should be kept in mind that some persistent vesicant gas could be used with volatile nerve gas to hamper rescue operations, or mixtures of war gases might be used to make identification more difficult Of the war gases now known use of the nerve gases Sarin and Soman and the vesicants mustard and nitrogen mustard is considered most probable Lewisite, dichloroethylarsine hydrogen cyanide phosgene and cyanogen chloride are the likelier of the other war gases for which high-level detection units should have identification tests in case certain of these chemical agents should be mixed with nerve gases for their nuisance value

Field detection teams will be required to wear the gas mask and impermeable, butyl-rubber-coated protective clothing consisting of a hood, a coverall-type, single-piece suit, gloves, one pair of boot covers, and one pair of rubber boots until the presence of persistent liquid nerve gas can be ruled out Since the impermeable suits and accessories are impervious to air and to body perspiration, the suits will very quickly give rise to great discomfort to personnel wearing them during hot, humid weather unless a two-piece, diaper-cloth suit is worn over the impermeable suit and kept well wet with water Obviously, chemical detection personnel with a limited amount of technical training and skill and wearing heavy-duty gas masks, heavy rubber gloves, and other protective clothing cannot be expected to carry out a series of complicated detection tests for poisonous gases in the field under wartime disaster conditions The field detection and collection apparatus should be easy to operate, and the field detection tests should be single-step, easily carried out procedures limited, if at all feasible, to one or two in number

Detection of War Gases by Field Units—Mr A B Andrews, Chief of the Special Weapons Division, has designed a simple apparatus (fig 1) for the identification of war gases in the field and for the collection, on silica gel granules in ampuls, of the air samples required for the high-level tests This apparatus is a modification of an apparatus originally designed by the Mine Safety Appliances Co for the detection of carbon monoxide The direction of flow has been reversed and an intake and outgo manifold added so that one or two ampuls containing test reagent on indicator paper or silica gel granules and two unimpregnated gas collection ampuls containing plain silica gel granules can be inserted into the apparatus at the same time The contaminated air can pass simultaneously through the detection and collection ampuls first, after which it will pass through a gas-absorbent canister before reaching the inside of the suction bulb, or air can be drawn through test ampuls one at a time by simply closing a cutoff to each of the other test and collecting ampuls

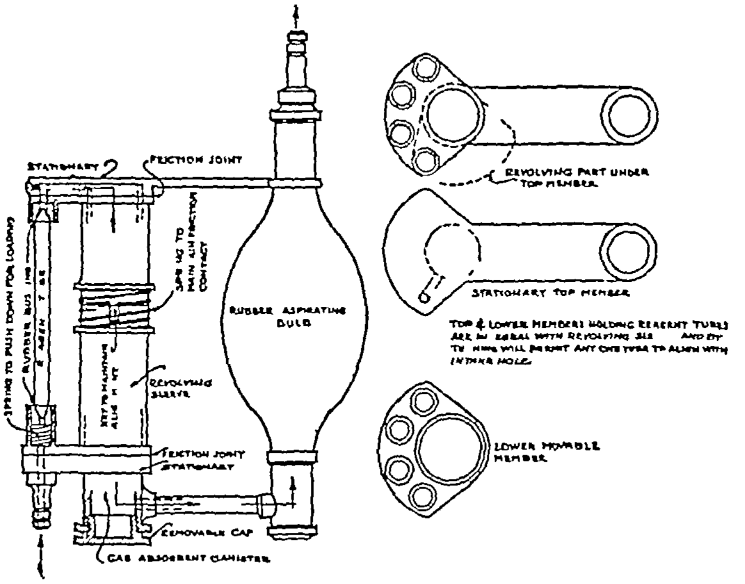
STATIONARY
FRICTION JOINT
SPRING TO PUSH DOWN FOR LOADING
RUBBER BUSHING
SPRING TO MAINTAIN AIR FRICTION CONTACT
RUBBER ASPIRATING BULB
REVOLVING SLEEVE
FRICTION JOINT
STATIONARY
REMOVABLE CAP
GAS ABSORBENT CANISTER
REVOLVING PART UNDER TOP MEMBER
STATIONARY TOP MEMBER
TOP & LOWER MEMBERS HOLDING REAGENT TUBES ARE IN SEAL WITH REVOLVING SLEEVE AND BY TURNING WILL PERMIT ANY ONE TUBE TO ALIGN WITH INTAKE HOLE
LOWER MOVABLE MEMBER

Fig 1—*Andrews apparatus for field testing of war gases*

Universal Indicator Paper or Solution as a Qualitative Test for Probable Hydrolyzable War Gases Universal indicator may well prove to be a good single, qualitative test reagent for the detection of war gases in the field Nitrogen mustard gives an alkaline reaction, whereas all of the other more probable vesicant gases, choking gases, and blood gases and, presumably, Taban, Sarin, and Soman give an acid reaction with the universal indicator It is believed that universal indicator paper, with proper moisture content and suitably sterilized, could be sealed into glass ampuls designed for use in the Andrews detection apparatus An acid or an alkaline reaction on the indicator paper would indicate the possible presence of war gases in an area Detection personnel should then collect samples of the contaminated air on silica gel granules for more specific testing by the high-level detection personnel outside the area of contamination Other nonwar gases in the area might give false positive tests with universal indicator, but it would be equally unwise for persons to enter areas where such gases were in sufficient concentration to give a reaction with universal indicator test paper It will be necessary to ascertain the effects of the various chemical agents in the gaseous state on universal indicator paper before it will be known with certainty whether all the gases named above will give either an acid or an alkaline color reaction at sufficiently low concentrations If some or all of the nerve gases fail to give a distinctive reaction in the vapor form with universal indicator paper, it will be necessary to devise some other simple qualitative test for the detection of all types of war gases in the field, if a single, simple test cannot be perfected, separate tests for the identification of the nerve and the vesicant agents in the gaseous state may be required Examples of such diagnostic tests that may prove adaptable for field use are listed below

Materials Required for Detection Units

	Equipment	No Required Per Unit
1	Chemical agents detection kit, field type	2
	One of the following types should be selected	
	(*a*) Andrews (bulb type)	
	(*b*) Lever air flow type	
	(*c*) Bournique type	
	(*d*) Jacobs type	
2	Chemical agents detection kit, high level type *	2
	One of the following types should be selected	
	(*a*) Lever air flow type	
	(*b*) Bournique type	
	(*c*) Chemical Agent Detector Kit M9-A2,† Department of the Army, if available	
3	Combustible gas indicator	1
	Supplies	
1	Reagents required for detection apparatus selected	
2	Replacement glassware and tubing for detection apparatus used	
3	Supplies required for adequate decontamination of detection apparatus and protective clothing ‡	
4	Marker signs and marker tape for marking gas-contaminated areas	
	Impermeable Protective Clothing (Butyl Rubber Coated)	
1	Suit, protective, impermeable, one piece, M3 †	8
2	Hood, protective, impermeable, M3 †	8
3	Gloves, protective, impermeable, M3 †	8
4	Boots, rubber, short, heavy knee, pair	8
5	Covers, boot, impermeable, pair, M1 †	8
6	Suit, cooling, two piece (jacket & trousers) diaper cloth, M1 †	8
7	Hood cover, cooling, M1 †	8
8	Mask, protective, M9A1 † or other approved type	8
9	Impermeable protective apron, M1 †	8
	Protective Accessories	
1	Protective ointment kit, M5A1 † includes	8
	(*a*) Protective ointment, 3 tubes, M5 †	
	(*b*) BAL eye ointment, 1 tube	
	(*c*) Atropine tartrate injection, 3 tubes	
2	Protective dubbing for shoes or leather boots, can	8
	Decontamination Equipment	
1	Decontamination apparatus, 1½ qt , M2 †	4
2	Decontamination apparatus, 3 gal , M1 †	

Silver Test for the Detection of Nerve Gases The nerve gases Sarin and Soman are basically phosphine oxide derivations Since phosphine may be detected by the brown to black color imparted to ammoniacal silver nitrate solution, it may be possible to detect nerve gas vapor in the field by drawing air through an ampul that contains silica gel previously impregnated with ammoniacal silver nitrate solution The silica gel should darken and finally assume a brownish color if nerve gas is present in the air sample. Actual experiments using the nerve gases in vapor form will be necessary to determine whether a distinctly positive test will be given with this ammoniacal silver nitrate reagent under conditions that would exist in the field All ampuls containing this silver test reagent would need to be wrapped in tinfoil or dark paper to keep out the light prior to their actual use Heat might have to be applied to the test ampul after the air sample is passed through the silica gel impregnated with the ammoniacal silver nitrate solution in order to induce a positive test reaction Any acid gas in sufficient concentration would neutralize enough of the base to permit the appearance of a colored silver compound on the impregnated silica gel

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* High level detection kits should be supplied only to regional units under state civil defense control, and not to county and city units under local control

† The letters and numbers refer to the armed forces numbers for these items and are included to facilitate matters if these items are eventually made available to civil defense agencies

‡ To be described in Section 2 of this plan, to be published

Acidified Iodoplatinate Paper for the Detection of Nitrogen Mustard Vapor· Nitrogen and sulfur mustards are the two next most probable to be encountered of the war gases Nitrogen mustards are bases and will give a basic reaction with suitable indicators A more specific test for both vapor and liquid forms of nitrogen mustards is acidified iodoplatinate paper This indicator paper can be made by soaking filter paper in a solution containing sodium iodoplatinate, glycerol, and phosphoric acid and then drying in a clean atmosphere This acidified iodoplatinate indicator paper should turn blue when air containing nitrogen mustard gases, either as free bases or in the form of salts, is drawn through an ampul containing the indicator paper in the Andrews apparatus

Congo Red Indicator Paper Test for Mustard Gas Vapor· The mustard gases give an acid reaction with suitable indicators and, in this respect, differ from the nitrogen mustards, which give an alkaline reaction The Congo red indicator test for mustard gas depends on the reaction of a stable chloroamide with mustard gas with the liberation of free hydrochloric acid, which turns Congo red indicator paper blue Halozone might meet the requirements for a stable chloroamide, but this chloroamide would need to be tried out in tests with the mustard gases The air to be tested (either atmospheric or that which has been contaminated by passage through earth samples) is drawn by means of the bulb of the Andrews detection apparatus through an ampul containing Congo red paper that has previously been spotted with a solution of the stable chloroamide dissolved in carbon tetrachloride and allowed to dry When mustard gas vapor in high concentration is present in the air sample, the spot darkens and finally appears as a blue area on a red background Nitrogen mustard gives a negative reaction with Congo red test paper spotted with a saturated carbon tetrachloride solution of a stable chloroamide This test has the added advantage that the amount of aspirated air required to produce this change can be used as an indication of the concentration of the mustard gas Acidic vapors and all strong acids interfere with this Congo red-chloroamide test for mustard gases, but this situation can be utilized in the detection of easily hydrolyzable chemical agents such as lewisite in earth samples The presence of such poisonous substances should be suspected if all the Congo red paper turns blue The chemical warfare agents that will cause the overall blue coloration of the Congo red test paper are lewisite, methyldichloroarsine, phenyldichloroarsine cyanogen chloride, sulfur trioxide, chlorosulfonic acid, and white phosphorus When both acid gases and mustard gas are suspected, the former may be removed by passing the air sample through a filter that has been impregnated with a 10% solution of sodium carbonate and allowed to dry The mustard gas vapor passes through the sodium carbonate filter and reacts in the usual way with the chloroamide spotted on the Congo red paper

Detection of the Persistent Liquid War Gases in the Field—Each field detection unit should be equipped with a shaker package containing an indicator powder that will give a distinctive color change when brought in contact with persistent vesicant and nerve gases in liquid form

Detector Powder MK 1 The MK.1 powder, devised by the British, comes in shaker packages suitable for use by field detection teams The following instructions appear on the MK.1 pack. Sprinkle a thin layer of powder over suspected damp surfaces The rapid appearance of a bright color denotes presence of liquid war gas Nerve gas gives a yellow or orange color Blister gas gives a reddish or purple color" This powder is ideal for the detection of persistent war gases in the liquid form since it is claimed that the powder gives these distinctive color changes for both the nerve gases and the blister gases Inquiries have been made through Mr D C Evans, A D., Tech Services (Land), British Joint Services Mission Washington, D C, with a view to arranging the purchase of a supply of this powder through regular commercial channels

The Lever Detector Powder and Crayon for the Detection of Liquid Blister Gases· Mr Wendall Lever, former chief of the Maine Civil Defense Chemical Section, has devised a detector powder for use by the field detection units in testing for persistent liquid blister gases This powder is made up of 1 part of Sudan IV, 5 parts of Sudan III, and 94 parts of talc or chalk A blue-green color develops as soon as the powder comes in contact with any of the liquid vesicant gases Persistent nerve gases do not, as far as is now known, react with this Lever indicator powder An indicator crayon can be made up from 1 part of an equal mixture of Sudan III and Sudan IV, 9 parts of plaster of Paris and 90 parts of precipitated chalk The ingredients are mixed and enough water added to make a thick paste, which is transferred to molds and allowed to dry This Lever crayon shows an immediate blue-green color when the persistent blister gases come in contact with the Sudan III and IV dyes in the detector crayon

The S D Warren Company Indicator Paper for Detection of Blister Gases An excellent white vesicant indicator paper was developed by the S D Warren Co., Inc, Westbrook, Maine, for the State Civil Defense Agency in Maine, Massachusetts, and Rhode Island during World War II. This indicator paper turns bright blue when the persistent liquid vesicants come in contact with it, but as far as is known this paper will not indicate nerve gas in any form This vesicant indicator paper can still be purchased from the manufacturer

Confirmatory Tests for the Specific Identification of War Gases—Since the introduction of chemical warfare during World War I, many new agents have been developed as chemical weapons Information about many of these substances has been carefully restricted, hence, it is difficult to propose a scheme of detection for chemical warfare agents that will be entirely adequate As a further result of this secrecy we must largely rely for detection on techniques developed from 1918 to 1942, supplementing these with tests based on such meager information as is available concerning the more recently developed war agents It is on this basis that the following scheme of analysis is proposed for use by the Maine Civil Defense Agency The information that follows has been gathered from a number of unrestricted sources, few of which have originated since 1943[1]

The various confirmatory tests for the detection of chemical warfare agents can be classified into two groups, namely field tests (F), those that are simple and give an immediate, detectable response to the agent and are, therefore, suitable for field use for immediate warning of the presence of gas, and high-level tests (H), those more complicated ones that do not permit an immediate detection, since one or more chemical operations are involved after the sample has been collected, and are, therefore, best done in the laboratory Tests of type F can generally be carried out with simple equipment by personnel that has had a minimum of chemical training However, such tests are rarely specific for any one war agent and often give false positive tests, therefore, it is necessary to supplement such tests with those of type H, which usually require somewhat more elaborate equipment and more thoroughly trained personnel, but which can often give very specific information concerning the nature of the war agent In the following discussion each test will be classified as either F, suitable for field use, or H, more suitable for high-level laboratory use The F tests will be given first in each of the sections listed below

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[1] Sources of the information in this article and other publications on this subject are Sartori M The War Gases Chemistry and Analysis New York, D Van Nostrand Company Inc., 1939 Jacobs M B War Gases Their Identification and Decontamination New York Interscience Publishers Inc 1942. Studinger J A Short System of Analysis for the Detection of Materials Used in Chemical Warfare Chem. & Ind 56 225 1937 Hoogeveen, A. P J The Detection of Small Quantities of War Gases ibid. 59 500-556 1940 Hickey F C., and Hanley J J., War Gas Identification Sets, J Chem. Educ 19 360 1942. Bradley T F Chemical Detection of War Gases for Civilian Defense Chem. & Engng. News 20 893 1942. Identification of Chemical Warfare Agents Publication 2219 United States Office of Civilian Defense Medical Division October 1943 Snell F D and Snell C. T Colorimetric Methods of Analysis ed 3 New York D Van Nostrand Company Inc., 1949 vol 2 pp 660-672. Jacobs, M B New York City Department of Health Chemical Agent Detector Kit, issued by the author January 1954 Chapman N B Heap R., and Saunders B C. Determination of Fluorine in Organic Compounds Analyst 73 434 1948 McCombie H., and Saunders B., Alkyl Fluorophosphonates Nature 157 287 and 776 1946 Fluoroacetates and Allied Compounds ibid 158 382, 1946 Sartori M F New Developments in the Chemistry of War Gases Chem. Rev 48 225 1951

Some of the F tests can be carried out by the use of test papers or powders that are sensitive to the war agent in question and undergo a change of color on exposure to contaminated air, liquids, or surfaces In some cases it may be more convenient to use an aspiration system, which draws suspected air through or over an active form of the test material on test paper or silica gel granules When this is the case, the apparatus shown in figure 1 or figure 2 may be used The apparatus shown in either figure 3 or figure 4 may generally be used for H tests The Lever air-flow test equipment (fig 3) uses the aspirator principle with an intake and outflow manifold assembly A set of five test tubes measuring 1 by 4 in (2 54 by 10 16 cm), mounted in easily accessible frames, should suffice for field detection use, about 10 test tubes would be more suitable for use by the high-level detection units Each tube is fitted with a three-hole, plastic stopper A glass tubing manifold input system is piped through one hole in the stopper to the bottom of each tube to permit the incoming gas to bubble through the test solution The output glass tubing manifold is piped from each active tube through the second hole in the stopper with the takeoff end in each tube about ½ in (1 27 cm) below the stopper A short piece of plastic tubing is attached to the outside end of a piece of glass tubing that goes through the third hole in the stopper, a glass rod is used to plug the open end of this plastic tube This glass rod is easily removed, and any additional reagent required to complete a reaction is added through the open end of the plastic tubing All flexible tubing in this Lever apparatus should be made of Saran or Tygon A large glass funnel is fitted to the inflow pickup tubing, and an aspirator bulb is attached to the output manifold tubing for the purpose of drawing air samples through the system As it is impracticable to attempt to pull the gas sample through all the test tubes at one time, pinchcocks are attached to each input tube as it comes off the intake manifold at the place marked by an X in figure 3 As each test is made, the pinchcock is released while the bulb is squeezed 20 to 30 times to pull the test sample of air through the test tube The pinchcock is then closed, and the one on the next tube is opened while air is drawn through the reagent mixture in the bottom of that tube, this procedure is repeated until all the tests have been run Most of the high-level confirmatory tests described below can be completed in this apparatus Reagents for the identification of phosphates and fluorides in nerve gas should go in the first two test tubes When the test for lewisite is run, a section of glass tubing containing acetylene indicator paper must be placed between the plastic stopper and the outflow manifold assembly Reagents for the detection of mustard and phosgene should follow in that order Additional high-level confirmatory tests can be run in this analyzer by simply adding more test tubes, each with the appropriate solution for that particular test A cyanogen chloride test would be the most likely one to add next, since this war gas may give a positive reaction with some of the nerve gas test reagents, thereby causing confusion

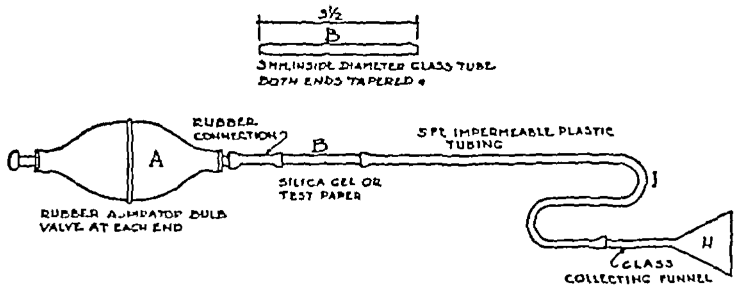

3½
B
5MM. INSIDE DIAMETER GLASS TUBE
BOTH ENDS TAPERED
A
RUBBER CONNECTION
B
5 FT. IMPERMEABLE PLASTIC TUBING
SILICA GEL OR TEST PAPER
I
RUBBER ASPIRATOR BULB VALVE AT EACH END
H
GLASS COLLECTING FUNNEL

Fig 2—Bournique reaction tube apparatus

The Bournique apparatus (fig 4) is used when liquid test reagents are required Only one test can be run at a time The reagent is placed in the Pyrex flask, which can be heated if necessary The test vessel is then closed with the aspiratory assembly, and air is passed through the liquid in the vessel by pressing and releasing the aspirator bulb 30 to 60 times As this is done, the entrance tube of the aspiratory assembly or the optional collecting funnel with its impermeable plastic tubing connection is held near suspicious-looking droplets or surfaces When contamination is present the ground, bushes, and other surfaces will often have a dark, spattered appearance

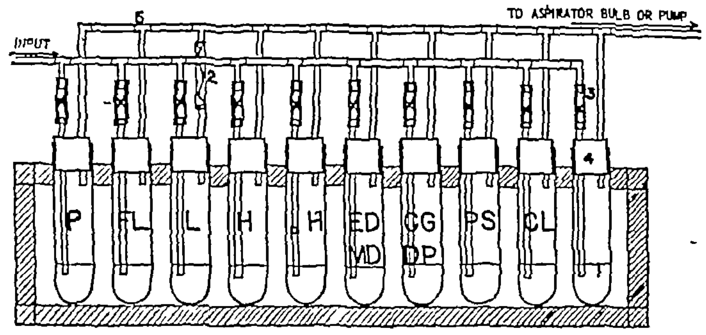


Fig 3—Aspirator unit of Lever air flow apparatus 1, 1 in by 4 in test tubes 2, cuprous paper indicator 3, Saran tubing connectors 4, plastic stoppers, no 5 5, 5 mm L and T glass tubing X pinch clamps The tubes are labeled according to the recommended sequence of tests This apparatus may be adapted in size to field use by eliminating some of the tests

The Bournique equipment shown in figure 2 again operates as an aspiration system, but the air to be tested is now pulled through small glass reaction tubes The tubes may contain a solid that supports the reagent used, a solid that absorbs the war agent, or a test paper impregnated with the reagent The reaction tubes are prepared by cutting 4 mm glass tubing into 2 to 3 in (5 1 to 7 6 cm) lengths and fire-polishing at each end A small amount of glass wool is inserted at one end and followed by the reagent, supported on a suitable solid in certain cases, by a solid adsorbent (such as silica gel) in other cases, or by strips of reagent-impregnated paper in still other instances The exact nature of the filling used is indicated for each test below At the other end of the reaction tube a second wad of glass wool may be inserted, if necessary The tests are carried out by pulling air through each tube in the manner described for the apparatus in figure 4 In either case, the Bournique apparatus will give a change of color without further use of chemicals in an F test In an H test, more reagents must be added or additional chemical operations carried out Since the operator must be adequately protected with a gas mask and protective clothing, this will be difficult unless he retires to an upwind area that is free of contamination once the samples have been secured The mask and some of the protective clothing may then be removed to facilitate additional operations It is, therefore, wise, when preparing to do H testing, to approach an area of suspected contamination from upwind and establish a base outside of the contaminated area Some of the bulkier equipment may be left at this point while the samples are gathered in the area of suspected contamination

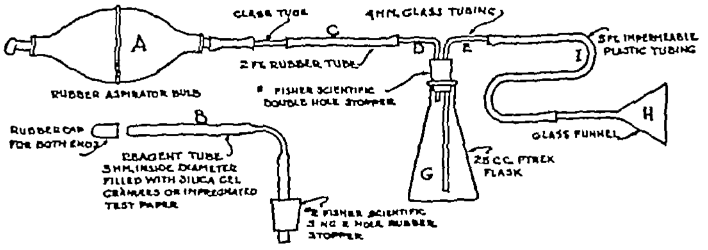

A
GLASS TUBE
C
4MM. GLASS TUBING
2 FT. RUBBER TUBE
D
E
5FT. IMPERMEABLE PLASTIC TUBING
I
RUBBER ASPIRATOR BULB
FISHER SCIENTIFIC DOUBLE HOLE STOPPER
B
RUBBER CAP FOR BOTH ENDS
REAGENT TUBE 5MM. INSIDE DIAMETER FILLED WITH SILICA GEL GRANULES OR IMPREGNATED TEST PAPER
G
25 CC. PYREX FLASK
H
GLASS FUNNEL
FISHER SCIENTIFIC 3 NO 2 HOLE RUBBER STOPPER

Fig 4—Bournique flask apparatus for high level tests

In an apparatus designed by Mr Lever for expelling poisonous chemical agents from samples of material collected in the field and collecting these agents for high level laboratory identification, contaminated samples are placed at the bottom of a 4 oz. (0 12 liter) bottle with a two-hole rubber stopper By means of glass tubing connection, air is blown down through one stopper vent over or into the specimen with an aspirator bulb the air flows through a connecting tube that extends into the absorbent material for the chemical agent, which is contained at the bottom of a test tube fitted with another two-hole stopper, one hole accommodating the connecting tube and the other, an exhaust vent Suitable high level identification tests can then be carried out on the gas specimen concentrated in this absorbent material

Morris B Jacobs, Ph D., Chief, Division of Chemical Detection, Department of Health, City of New York, has designed a chemical agents detector kit for use by the civil defense chemical officers in that city Equipment and the detection procedures are included for the detection of mustard, phosgene, halogens, and nerve gases The Jacobs kit may be purchased from the LaMar Laboratories, Inc , New York 10

The various tests for the detection of chemical warfare agents will be described in the order in which testing should be carried out, the procedures for the most toxic and dangerous of the agents being given first. This order is nerve gases such as fluorophosphates, vesicants or blister gases, choking or irritant gases, and blood gases Details of preparation of the reagents to be used for the various tests follow the list of tests

Detection of Fluorophosphates (Nerve Gases) Chemical warfare agents that inhibit the action of acetylcholinesterase in the body and act as nerve poisons will generally contain either fluorine or phosphorus, if not both These agents may be detected by decomposition to either fluoride or phosphate ion and identification of these ions with suitable tests Decomposition will generally be effected by heating with 5% sodium hydroxide solution, which results in hydrolysis to fluoride and phosphate The tests involving such decomposition are of type H, owing to the further operations of heating and addition of reagents that are necessary

1 Fluoride Ion Detection (H Test) Using the Bournique apparatus (fig 4), 10 ml of 5% sodium hydroxide solution is placed in the Pyrex flask The contaminated material is either added to the flask or sampled with the aspiratory assembly as described above The aspiratory assembly is then removed, and the flask contents are heated with a Bunsen burner or alcohol lamp for 5 to 10 minutes After cooling, the solution is acidified with 2N hydrochloric acid (about 6 3 ml) and is divided into two equal portions, which are placed in separate Pyrex flasks A blank solution is prepared by adding 5 ml of the sodium hydroxide solution to another Pyrex flask. The sodium hydroxide solution is acidified with about 3 3 ml of 2N hydrochloric acid, and 2 ml of zirconium nitrate-sodium alizarinate test solution is added to it Two milliliters of zirconium nitrate-sodium alizarinate test solution is added to one of the two equal portions of the sample solution and this is compared to the blank solution If the sample solution shows any appreciable bleaching of color of the reagent as compared to the red color of the blank, fluoride is present.

2 Phosphate Ion Detection (H Test) To the second portion of the sample solution, 2 ml of ammonium molybdate solution is added The Pyrex flask is shaken and allowed to stand for a few moments, 1 ml of hydroquinone reagent is added and the vessel shaken again, and finally, 1 ml of 20% sodium sulfite solution is added and the flask shaken once more If phosphate is present, its phosphomolybdate complex will be reduced to molybdenum blue, producing an intense blue color

The tests for fluoride and phosphate ion may also be carried out with the Lever reaction tubes (fig. 3) or the Jacobs kit The fluoride test in the Jacobs kit is carried out by use of a reaction tube containing a strip of paper that has been impregnated with zirconium nitrate and sodium alizarinate solutions The paper is wet with 5% sodium hydroxide solution and the usual aspiration carried out to collect a sample The reaction tube is then heated with an alcohol lamp in such a manner as not to char the paper Fading of the paper from pink or red to white indicates fluoride For the phosphate test, a plain strip of filter paper is placed in the reaction tube and wet with 5% sodium hydroxide solution The sample is taken and the wet portion of the paper heated with the lamp as before After cooling 2 drops of 2N hydrochloric acid are added, followed by 1 drop of molybdate solution and 2 drops of ammonia benzidine as the reducing agent The formation of a blue color indicates phosphate To avoid trouble due to charring of paper in both tests, washed asbestos fiber might be used as absorbent in place of filter paper

3 Detection of Blister Gases or Vesicants· Field detection is generally feasible for agents of this class, when present in liquid form with a dye that dissolves in the liquid agent to give a distinctively colored solution An example is Sudan red combinations which give a red color when sprinkled on a liquid vesicant agent MK.1 detector powder turns reddish or purple when dissolved in a vesicant. Since some organic solvents, sulfuric acid etc also dissolve such dyes to produce colors, such detection is subject to many false results and must be confirmed by H tests It is necessary to make at least two such tests, one for the arsenic-containing vesicants and the other for the persistent mustard and nitrogen mustard chemical agents

4 Differentiation Between Mustard and Nitrogen Mustard (F test) The only test now available other than the chloramide-Congo red test, is one based on a change in pH The nitrogen mustards give an alkaline reaction As a result, air containing such materials will give a blue color indicative of a pH of 9 to 11 when aspirated over moistened universal indicator paper in glass aspiration tubes, using the Bournique reaction tube apparatus Persistent liquid vesicants could be directly tested with dry universal indicator paper The color obtained in a positive test for nitrogen mustards will be blue Other vesicant gases will give an acid reaction (red color) when passed over the moistened universal indicator paper, and other persistent vesicants in liquid form will react with the dry universal indicator paper to give a red color

5 Detection of Mustard and Nitrogen Mustard with Selenium Dioxide (H Tests) Either the Lever air-flow or the Bournique flask apparatus may be used Two milliliters of the selenium dioxide reagent is added to the Pyrex flask, the vessel tightly attached to the aspiration assembly, and a sample taken in the usual manner The mixture in the vessel is then warmed nearly to boiling with an alcohol lamp or Bunsen burner If mustard gases have been collected, the selenium dioxide will be reduced to free selenium with production of a red color, however, other reducing agents, such as hydrogen sulfide and probably, the arsenical vesicants will produce the same results This test may also be carried out with the Bournique reaction-tube apparatus A Pyrex flask containing a mixture of calcium chloride powder and selenium dioxide is used for the aspiration technique by which the sample is gathered Two drops of 2N hydrochloric acid are then added to the calcium chloride-selenium dioxide mixture At this point it is advisable to heat the flask gently with the alcohol lamp or Bunsen burner although some procedures do not give such instructions Again the production of a red color indicates the presence of mustard or nitrogen mustard

6 Detection of Mustard and Nitrogen Mustard with Sodium Iodoplatinate Using the Bournique reaction tube apparatus 1 drop of 5% acetic acid or of 2N hydrochloric acid is added to a reaction tube containing either silica gel or glass wool Aspiration in the usual manner is done to obtain a sample, 3 drops of sodium iodoplatinate are added to the tube followed by 1 drop of starch solution Mustard and nitrogen mustard will reduce the iodoplatinate with liberation of free iodine which reacts with the starch solution to give the characteristic blue starch iodide complex Chlorine, nitrous fumes and arsenical vesicants may interfere

7 Detection of Arsenical Vesicants (H Test) Five grams of arsenic free zinc is placed in the Bournique flask and sufficient copper sulfate solution added to cover it After a minute the copper solution is drained off and replaced with 10 ml of water Contaminated material is added to the flask or sampled by aspiration in the usual manner A wad of cotton moistened with lead acetate solution is placed next to the constriction of the stoppered reagent tube then a strip of mercuric bromide or mercuric chloride paper is inserted in the tube with a little of the paper extending beyond the distal end of the tube to act as a comparison blank The aspiration assembly is removed

from the Pyrex flask, 5 ml of concentrated hydrochloric acid added to it, and the reagent tube tightly inserted into its neck If arsenicals are present, arsine (AsH_3) will be evolved This substance reacts with the mercuric salt of the test paper to produce yellowish-brown to black-brown complexes The lead acetate solution on the cotton plug preceding the test paper is for the purpose of removing hydrogen sulfide, which would react with the test paper to form black lead sulfide If the identification of individual arsenicals is desired, further H tests must be carried out

Differentiation of Arsenical Vesicants The following tests are all of type H but are also very simple and could probably be used virtually as F procedures

8 Detection of Diphenylaminechlorarsine Silica gel in one of the Bournique reaction tubes is impregnated with 2 to 3 drops of concentrated sulfuric acid, or several milliliters of this acid is placed in the Pyrex flask of the Bournique flask apparatus In either case, aspiration is done in the usual manner or the suspected liquid is added *This war agent produces a red color* with the cold acid On addition of 2 to 3 drops of 5% potassium nitrate solution the color changes to purple or blue, probably owing to an impurity, diphenylamine, which is always present in this war gas The other arsenicals give no color with sulfuric acid, the test is confirmatory for this chlorarsine

9 Detection of Lewisite The suspected vapor is aspirated in the usual manner through a Bournique reaction tube that contains silica gel, or suspected liquid is sucked up, (1) 2 to 3 drops of Sloat's reagent, an alkaline solution of cuprous ion, are then added If lewisite is present it will form acetylene, and the acetylene will produce a red color by the formation of cuprous acetylide This test is quite specific An F procedure may be done by the insertion of a strip of filter paper moistened with the reagent in the reaction tube, followed by immediate aspiration A red color again indicates lewisite (2) Alternatively, the reaction tube is opened and some of the vapor-impregnated silica gel granules are permitted to drop into 1 or 2 ml of ammoniacal silver nitrate solution If lewisite is present, the silver compound is reduced and the granules will turn black

10 Detection of Ethyl or Methyl Dichlorarsine The suspected vapor is introduced in the Bournique reaction-tube apparatus as before, 2 to 3 drops of 5% mercurous nitrate solution are then added Formation of a gray color within a few seconds indicates one of the above dichlorarsines Lewisite will give a gray color after about 12 hours

11 Detection of Diphenylcyanoarsine The procedure for identifying dichlorarsines is carried out On addition of the mercurous nitrate, the silica gel should turn black immediately if diphenylcyanoarsine is present Alternatively, several silica gel granules used in sampling, as above, are dropped into 1 or 2 ml of 5% mercurous nitrate solution acidified with a few drops of 0 1N nitric acid Rapid blackening in the cold solution indicates diphenylcyanoarsine, while the more gradual development of a gray color indicates either methyl or ethyl dichlorarsine It may be difficult to distinguish among these three agents without testing for cyanide

Detection of Lung Irritants As no specific reagents for this class of war gases appear to be available, it is necessary to test separately for the individual lung irritants

12 Detection of Chlorine with Aniline Hydrochloride (F Test) The Bournique tube contains aniline hydrochloride paper rolled into spirals As suspected air is aspirated through the tube in the usual manner, a color change from white to red or blue is observed in the presence of chlorine However, many other oxidizing agents may interfere

13 Detection of Phosgene, Di-Phosgene, and Tri-Phosgene (F Test) The Bournique reaction tube contains a strip of filter paper that has been impregnated with 2 or 3 drops of Harrison's reagent On aspiration in the usual manner, the paper changes from colorless to yellow in the presence of phosgene The following substances may interfere hydrogen chloride, bromine, chlorine, lewisite, and nitrogen dioxide To differentiate among these gases, the same test is done substituting 2 drops of nitroso reagent for the Harrison's reagent If phosgene alone is present a Michler's type ketone is formed that causes the paper to change in color from brown to green The nitroso reagent is virtually specific for phosgene A positive test with Harrison's reagent and a negative with the nitroso reagent indicates di-phosgene and tri-phosgene but no phosgene The nitroso reagent is rather difficult to prepare and may decompose within two or three months of preparation

14 Detection of Chlorpicrin (H Test) (1) Nitrite reaction 2 or 3 drops of sodium ethylate solution are added to the silica gel in a Bournique reaction tube, and aspiration is done in the usual manner Any chlorpicrin that passes through the tube will be decomposed by the sodium ethylate with the formation of nitrite After aspiration, 2 or 3 drops of glacial acetic acid, 1 or 2 drops of sulfanilic acid, and 1 or 2 drops of alpha-naphthylamine are added The nitrite will diazotize the sulfanilic acid, which then couples with the alpha-naphthylamine to form a rose or pink color when chlorpicrin is present Chloroform interferes This test may also be carried out with the Bournique flask apparatus With 1 or 2 ml of sodium ethylate in the Pyrex flask, aspiration is done and several drops of glacial acetic acid are added to the flask, followed by 1 ml each of sulfanilic acid and alpha-naphthylamine The color change is as indicated above when chlorpicrin is present (2) Test with diphenylamine sulfonate with 1 or 2 drops of concentrated sulfuric acid on the silica gel of a Bournique reaction tube, a sample is collected as usual, 1 drop of water is added to the tube and allowed to stand for one minute, 1 drop of barium diphenylamine sulfonate reagent is added If chlorpicrin is present, it will hydrolyze to nitrous acid, which reacts with the diphenylamine reagent to give a blue color Oxides of nitrogen, stannic chloride, and titanium tetrachloride interfere This test may also be carried out with the Bournique flask apparatus With 2 or 3 ml of concentrated sulfuric acid in the Pyrex flask, aspiration is carried out in the usual manner, several drops of water are added, followed one minute later by 2 drops of barium diphenylamine sulfonate reagent Chlorpicrin gives a blue color as before

Detection of Systemic Poisons The two most likely agents of this type appear to be hydrogen cyanide and arsine Tests for these materials are given below

15 Detection of Hydrogen Cyanide (F Test) The Bournique reaction tube contains a spiral of filter paper that has been dipped into an equal mixture of copper acetate solution and benzidine acetate solution Aspiration is done, in the presence of hydrogen cyanide, a blue color is produced on the indicator paper

16 Detection of Arsine (F Test) This test is the same as that used for arsenical vesicants (test 7) from the point at which the latter gases have been decomposed into arsine The test is readily carried out with the Bournique reaction tube apparatus The tube now contains mercuric chloride or bromide paper preceded by a cotton plug moistened with lead acetate solution The suspected vapor first passes over the lead acetate, which will remove hydrogen sulfide when present in the air sample, any arsine that is present will react with the mercuric bromide or chloride to form a yellow or brown complex on the test paper

General Tests for Chemical Agents A number of general methods have been proposed for the detection of war agents Some of these are quite elaborate and depend on combustion procedures that decompose the war gas into easily recognized products, others depend on simpler techniques The two most readily applied simple procedures follow

17 pH Test for War Gases (F Test) This test depends on the acid or alkaline reactions given by various chemical agents as they decompose by hydrolysis to form free acids and bases In some cases it is only necessary to touch suspected liquid with a piece of universal pH paper In other cases the aspiration of suspected vapor through a solution of universal pH indicator in a Lever test tube or a Bournique flask may be more effective Substances that hydrolyze to give an acid reaction include mustard, phosgene, and cyanogen chloride These will produce a red color with the indicator As already mentioned, nitrogen mustards will give an alkaline reaction and have a blue color

18 Beilstein Test for War Gases (F Test) A copper wire heated in a flame such as that of an alcohol lamp will give a green flame if a war gas containing halogen or cyanide is present in the atmosphere surrounding the lamp The wire must be heated in halogen-free air until green color is absent from the flame before making the test

Reagents—Directions follow for the preparation of the various reagents that are used in the tests described above

Reagents for the Fluoride Test (test 1) (1) Sodium hydroxide 5% dissolve 5 gm of solid sodium hydroxide in 100 ml of water (2) 2N hydrochloric acid dilute the concentrated acid with 5 vol of water to each volume of acid (3) Zirconium nitrate-sodium alizarinate solution dissolve 0.87 gm of zirconium nitrate $[Zr(NO_3)_4 \cdot 5H_2O]$ in 100 ml of water Dissolve 0.17 gm. of sodium alizarinate in 100 ml of water Mix equal portions of the two solutions just prior to use (4) Zirconium nitrate-sodium alizarinate test paper the solutions of each of the reagents are prepared, as above, just before use Place the zirconium nitrate solution in one evaporating dish and the sodium alizarinate solution in another Circles of filter paper are first placed in the sodium alizarinate solution for a few seconds and then dipped into the zirconium nitrate solution After drying, the paper is cut into strips 2 in (5.08 cm) long and about ¼ in (0.64 cm.) wide The strips are rolled into spirals, and one strip is inserted into each end of a reaction tube At one end of the tube the paper is pushed back about ½ in to permit the addition of liquid reagents

Reagents for the Phosphate Test (test 2) (1) Ammonium molybdate solution (Bournique) dissolve 25 gm of ammonium molybdate in 300 ml of water Dilute 75 ml of concentrated sulfuric acid to 200 ml with distilled water and add to the molybdate solution (2) Ammonium molybdate solution (Jacobs) dissolve 40 gm of ammonium molybdate in 100 ml of water (3) Hydroquinone solution dissolve 0.5 gm of hydroquinone in 100 ml of water and add a drop of concentrated sulfuric acid to retard oxidation (4) Ammonia benzidine solution dissolve 0.05 gm of benzidine or benzidine hydrochloride in 10 ml of concentrated acetic acid and dilute with water to 100 ml Add 7 ml of concentrated ammonium hydroxide solution to 21 ml of the benzidine solution

Reagent for Nitrogen Mustard Test (test 4) Universal pH indicator solution or paper may be obtained from virtually any chemical supply house

Reagents for Mustard Gas Test (test 5) (1) Selenium dioxide-calcium chloride reaction tubes mix, preferably by thoroughly grinding in a mortar with a pestle, 5 gm of selenium dioxide with 20 gm of powdered anhydrous calcium chloride Fill reaction tubes to a length of about 1 to 1½ in (2.54 to 3.81 cm) with this mixture, using glass wool to close each end This is the mustard gas reagent used in the Jacobs kit. (2) 5% sodium nitrate solution dissolve 5 gm of the salt in 100 ml of water

Reagents for Mustard Gas Test (test 6) (1) Sodium iodoplatinate solution add 1 ml of a 5% platinic chloride solution to 5.3 ml of a 5% solution of sodium iodide Dilute to 180 ml with water (2) Starch solution mix about 1 gm of soluble starch with 4 to 6 ml of water until a paste is formed Add 200 ml. of boiling water and stir thoroughly Cool and add 2 drops of toluene as a preservative (3) 2N hydrochloric acid see reagents for test 1 (4) 5% acetic acid dilute 5 ml. of glacial acetic acid with 95 ml of water

Reagents for the Arsenical Test (test 7) (1) Concentrated hydrochloric acid (2) Arsenic free zinc shot. (3) Copper sulfate solution dissolve 5 gm of the pure hydrate in 100 ml of water (4) Lead acetate solution dissolve 5 gm of the pure salt in 100 ml of water (5) Mercuric chloride or mercuric bromide paper dissolve 10 gm of mercuric chloride or mercuric bromide in 100 ml of water, immerse a circle of Whatman filter paper no 40 in the solution, allow to dry, and cut into strips The mercuric chloride and mercuric bromide paper may also be purchased from a supply house

Reagents for Detection of Lewisite (test 9) (1) Sloat's reagent dissolve 10 gm of sodium hydroxide in 50 ml of water Add to this solution 4 gm of arsenic trioxide and stir until it is in solution Prepare a second solution of 0.4 gm of copper acetate dihydrate $[Cu(C_2H_3O_2)_2H_2O]$ in 10 ml of water Heat both solutions to 85 C, and add the copper solution to the arsenic trioxide solution with constant stirring Cool the mixture rapidly in cold water, the orange precipitate should now dissolve, and the solution may be diluted with 40 ml of water to a final volume of 100 ml (2) Ammoniacal silver nitrate solution dilute concentrated ammonium hydroxide 1:1 with water and add this, drop by drop, to 10 ml of a silver nitrate solution containing 5 gm of the salt per 100 ml of water until the precipitate that first forms is completely dissolved.

Reagent for Detection of Ethyl or Methyl Dichlorarsine and Diphenylcyanoarsine (tests 10 and 11) 5% mercurous nitrate solution this reagent should be freshly prepared by dissolving 5 gm of the pure salt in 100 ml of water

Reagents for Phosgene Tests (test 13) (1) Harrison's reagent. dissolve 5 gm. of *p*-dimethylaminobenzaldehyde and 5 gm of colorless diphenylamine each in 50 ml of carbon tetrachloride. Combine the two solutions immediately and dip filter paper into the mixture The filter paper is allowed to dry and is cut into thin strips which are stored in a tightly-sealed, brown, dry bottle For use, one or two strips may be twisted into a spiral and pushed into an empty reaction tube, or the strips may be directly exposed to the suspected air (2) Nitroso reagent. it is first necessary that 1 2,4,nitrosodiethylaminophenol be prepared, 0.5 gm of m-diethylaminophenol (obtainable from Eastman Kodak Co) is dissolved in 15 ml of water containing 1 ml of concentrated hydrochloric acid The solution must be cooled to 0 C before use Sodium nitrite, 0.22 gm, is dissolved in 5 ml of water and added to the first solution with an eyedropper while the temperature is constantly maintained at 0 C The addition should require 20 minutes The mixture is then made nearly neutral by the addition of a solution of 2 gm of sodium acetate in 5 ml of water, after which it is extracted with 50 ml of benzene After it separates the benzene layer is filtered through a dry filter paper The final reagent is prepared by mixing equal portions of the filtered benzene layer and a solution of 0.2 gm of m-diethylaminophenol in 50 ml of benzene The reagent is kept tightly stoppered in a brown bottle For use, 2 or 3 drops are added to a twisted strip of filter paper pushed into an empty reaction tube The reagent is unstable and must be renewed about every three months

Reagents for the Chlorpicrin Test (test 14) (1) Sodium ethylate solution dissolve 3 gm of sodium in 100 ml of ethyl alcohol (2) Sulfanilic acid solution dissolve 1 gm of sulfanilic acid in hot water, cool, and dilute to 100 ml (3) Alpha naphthylamine hydrochloride solution boil 0.5 gm of this substance in 100 ml of water for 10 minutes Add water to keep the volume essentially constant during the boiling period (4) Barium diphenylamine sulfonate solution dissolve 2 gm of this material in 100 ml of water If on standing a blue color develops, a fresh solution must be prepared

Reagents for the Hydrogen Cyanide Test (test 15) (1) Cupric acetate solution dissolve 2.86 gm of copper acetate dihydrate in water and dilute to 1 liter (2) Benzidine acetate solution place an excess of benzidine acetate in 475 ml of water Shake or stir until the solution is saturated Filter and dilute to 1 liter with 525 ml of distilled water (3) Impregnated paper strips of filter paper 3 to 4 mm wide should be dipped in an equal mixture of the above two solutions just before sampling is done

Reagents for the Arsine Test (test 16) See above, reagents for test 7

COMMENT

The procedures described above will probably permit the satisfactory detection of any one of the war gases if only that agent is present In the case of certain mixtures of gases satisfactory results may still be obtained With very complicated mixtures this may no longer be the case It is not very likely that extremely complicated mixtures would be used, but the possibility cannot be discounted Moreover many other agents have been proposed as war gases concerning which little is known Should some of these prove especially potent and be adapted to wartime use, it is probable that the tests that have been given would prove inadequate As a result, the scheme proposed here can be regarded only as a tentative one that might be subject to radical revision in the event of actual hostilities Civil defense might then depend on the release of adequate procedures for detection by the armed forces Another alternative would be the study of this problem of a satisfactory scheme for detection of war gases by a suitable national organization It is probably too large a problem to be adequately treated by any one state civil defense group

MEDICAL NEWS

ARKANSAS

Society News —Dr Columbus R Ellis, Malvern, recently became president of the Arkansas Academy of General Practice, Dr Benjamin N Saltzman, Mountain Home, was made president-elect, and Dr Clifton C Long, Ozark, was reelected secretary-treasurer ——Newly elected officers of the Arkansas Obstetrical and Gynecological Society include Dr Charles P Wickard Little Rock, president, Dr John W Jones, Texarkana, vice-president, and Dr J F Kelsey, Fort Smith, secretary

Personal —Dr Fount Richardson, 316 W Dickson, Fayetteville, has been named editor of the *Journal of the Arkansas Medical Society*, succeeding Dr William R Brooksher, who resigned after 20 years of service ——Dr William King Jordan, Little Rock, head of the department of neurology, University of Arkansas School of Medicine, took part in the International Neurochemical Symposium held in Oxford University, England, during July

Rockefeller Rural Survey —The Arkansas Medical Society has appointed the following physicians as an advisory committee to work with the University of Arkansas School of Medicine, Little Rock, on the Rockefeller plan for a study of Arkansas rural health facilities chairman, Louis K Hundley, Pine Bluff, who is chairman of the society's council, William R Brooksher, Fort Smith, president of the society, James M Kolb, Clarksville, Fount Richardson, Fayetteville, Benjamin N Saltzman, Mountain Home, and Henry W Thomas, Dermott The study, to be financed by Mr Winthrop Rockefeller, who proposed the plan, will include the establishment of a pilot clinic

CALIFORNIA

Town Honors Physicians —A new elementary school in Turlock is to bear the name of two of the town's family physicians, Drs Albert E and Eric A Julien, aged 73 and 71 years, respectively, chosen because they have "given unstintingly of their time to help others"

ic Relations Director —In a move to strengthen its public lations program, the Los Angeles County Medical Association appointed Jerry Pettis, former associate director of public ations for the California Medical Association, as executive istant to the president Mr Pettis, who served as assistant to e president of United Air Lines before joining the state medical organization, is the founder of Audio-Digest (THE JOURNAL, March 20, 1954, page 1007, June 2, 1954, page 73), a nonprofit C M A subsidiary that he serves as executive vice-president

Postgraduate Surgical Clinics —Starting Sept 14, 8 to 10 p m, and continuing for six weeks at weekly intervals, postgraduate surgical clinics will be given at Fort Miley by the department of surgery of the Veterans Administration Hospital and Stanford University School of Medicine, San Francisco Members of the American Academy of General Practice will receive 12 hours' education credit Nonmembers are invited to attend on payment of the registration fee Interns and resident staffs of the Bay Area hospitals are welcome to attend without fee but must register Dr Forrest M Willett, chief of medical service at Fort Miley and associate professor of medicine at Stanford, will be coordinator of the program, and Dr Louis G Brizzolara, chief of surgical service at Fort Miley and assistant clinical professor of surgery at the University of California School of Medicine, San Francisco, will act as moderator Those wishing to obtain program and registration forms should contact Dr Alexander F Fraser, program chairman, 3004 16th St, San Francisco, HEmlock 1-0388, or the office of the California Academy of General Practice, 461 Market St, San Francisco, YUkon 2-2329

GEORGIA

Dr Russell Oppenheimer Retires —Dr Russell H Oppenheimer, who for the past 33 years has been associated with the Emory University School of Medicine, Emory University, retired as professor of medicine and director of postgraduate education at Emory Aug 31 He has been dean of the medical school for 20 years and superintendent of the university hospital for 13 years He served with the Army in World War I and, after a period of private practice in Detroit, joined the staff of Grady Memorial hospital in Atlanta as the first resident physician in the Emory University division in 1921 Dr Oppenheimer has been a leader in medical-civic affairs When Battle Hill Haven, a home for the aged and chronically ill, opened in Atlanta, he volunteered to supervise the medical care of patients without compensation He has also served on the board of trustees of the Atlanta Tuberculosis Association and on the medical committee of the Social Planning Council Dr Oppenheimer is an honorary member of Phi Rho Sigma and Alpha Omega Alpha societies He plans to make his home with his sister, Mrs Eleanor M Bronson, in Jacksonville, Fla

IDAHO

State Medical Election —Newly elected officers of the Idaho State Medical Association include Drs Alexander Barclay Jr, Coeur d'Alene, president, Robert S McKean, Boise, president-elect, and Quentin W Mack, Boise, secretary-treasurer The next annual meeting will be held at Sun Valley, June 19 to 22, 1955

ILLINOIS

Society News —Newly elected officers of the Illinois Psychiatric Society include Dr Percival Bailey, Chicago, president, Dr Franz G Alexander, Chicago, vice-president, and Dr Alex J Arieff, Chicago, secretary-treasurer

Chicago

Cancer Fellowship Established —The Bertha Gerber Memorial Cancer League, of which Dr Adolph A Smolen is president, has established the Bertha Gerber Memorial Cancer League fellowship at the Chicago Medical School with a grant of $3,000 for the present year The money is to be used to support a young scientist engaged in cancer research in the department of oncology under Philippe Shubik, Ph D, director

Institute on Rheumatic Fever —La Rabida Sanitarium, Chicago, announces an institute on rheumatic fever and rheumatic heart disease, Oct 11 to 15, directed primarily to the general practitioner or family physician and to nurses, medical social workers, occupational therapists, dentists, and others with a similar interest The last day will be devoted to a scientific program, concluding with the Robert A Black lecture on rheumatic fever Advance registration will be required for those who wish to attend the entire five day session Visitors to individual sessions will be admitted by card on previous application Information will be supplied by circular on application to Institute, La Rabida Sanitarium, E 65th St and South Shore Dr, Chicago 49

MARYLAND

Alvarenga Prize Awarded —The College of Physicians of Philadelphia on July 14 awarded the Alvarenga prize for 1954 to Dr DeWitt Stetten Jr, associate director in charge of research, National Institute of Arthritis and Metabolic Diseases, Bethesda, for contributions to the knowledge of metabolic diseases The Alvarenga prize was established by the will of Pedro Francisco DaCosta Alvarenga of Lisbon, Portugal, an associate fellow of the College of Physicians of Philadelphia, to be awarded annually by the College of Physicians on the anniversary of the death of the testator, July 14, 1883

Physicians are invited to send to this department items of news of general interest for example, those relating to society activities, new hospitals education, and public health Programs should be received at least three weeks before the date of meeting

Personal.—An honorary doctor of science degree has been conferred on Charles W Shilling, Captain, M C, U S N, senior medical officer of the U S Naval Academy, Annapolis, by Taylor University of Upland, Ind, because of his scientific contributions to the field of military medicine Captain Shilling's primary interest has been in the field of submarine medicine and deep sea diving In 1939 his knowledge was put to use as the senior medical officer in charge of the rescue of the crew of the stricken submarine U S S Squalus——Dr Charles R Hayman, Bel Air, who has been serving as deputy state and county health officer since 1949, has gone to Juneau, Alaska, to assume his duties as deputy commissioner of health and chief of the medical services section Alaska Department of Health

MICHIGAN

Dr Kennedy Honored—A testimonial dinner in honor of Dr Robert B Kennedy, associate professor of obstetrics, Wayne University College of Medicine, Detroit, held in Detroit, June 30, was attended by over 225 friends, fellow physicians, and their wives and was sponsored by Dr Kennedy's former residents, who trained under him while he was chief of the department of obstetrics at Woman's Hospital and St Joseph Mercy Hospital in Detroit Dr Carl F Shelton was chairman of the dinner Drs William E Johnston of Woman's Hospital and John P Hubbard Jr of St Joseph Mercy Hospital were the toastmasters Dr Charles S Stevenson represented Wayne University A scroll from the mayor of Detroit and the key to the city were presented to Dr and Mrs Kennedy

MINNESOTA

Society News.—The Minnesota Academy of Occupational Medicine and Surgery, which was organized Oct. 1, 1953, held its first annual meeting May 26 at the Minneapolis Athletic Club Dr John F Shronts, Minneapolis, was named president Dr Leslie W Foker, Minneapolis, vice president Dr James R Fox, Minneapolis, secretary, Dr Tracy E Barber, Austin, treasurer, and Dr Gordon C MacRae, Duluth, recorder

Pediatric Reunion to Honor Dr McQuarrie—A pediatrics reunion at the University of Minnesota, Minneapolis will be held in conjunction with the annual Northwestern Pediatric Society meeting Sept 23 to 25, in honor of Dr Irvine McQuarrie, head, department of pediatrics, who has given 25 years of service to the university Lectures will be delivered at the meeting by 22 academic leaders in the field of pediatrics, most of whom received their pediatric training under Dr McQuarrie As an additional tribute, a McQuarrie Pediatrics Fund has been established with a goal of $50,000 The annual income will be used to provide a lectureship in pediatrics, a scientific travel fund for pediatrics staff members to attend special conferences, fellowships in unusual circumstances, and equipment that may be needed from time to time by the department, and for any other purpose within the department as approved by the committee Before coming to Minnesota, Dr McQuarrie served on staffs of the University of California Medical School, Berkeley-San Francisco, Henry Ford Hospital, Detroit, Yale University, New Haven, Conn, and the University of Rochester (N Y) School of Medicine and Dentistry Dr McQuarrie is editor in chief of Brennemann's Practice of Pediatrics'

NEBRASKA

Narcotic Violation—Dr Charles Wells Neill, South Sioux City was found guilty of having violated federal narcotic laws and on June 30 was sentenced to serve a term of one year and one day

Crippled Children's Clinics—The following clinics have been scheduled for crippled children

Sept. 11 Broken Bow High School
Sept 25 Lexington High School.
Oct. 9 O'Neill High School
Oct 23 Wayne Benthack Hospital.

NEW JERSEY

Society News.—Dr Richard B Cattell, director, Lahey Clinic, Boston, will be the guest speaker at the installation dinner of the Passaic County Medical Society, Sept 15 at the Alexander Hamilton Hotel in Passaic His subject will be 'Surgical Diseases of the Pancreas"——At the recent annual meeting of the Radiological Society of New Jersey the following officers were elected Dr Nicholas G Demy, Plainfield, president Dr Solomon Silvera, Jersey City vice president, Dr Carye-Belle Henle, Newark, secretary, and Dr Leonard S Ellenbogen, Atlantic City, treasurer

NEW MEXICO

State Medical Election—At the annual meeting of the New Mexico Medical Society the following officers were elected Drs John F Conway, Clovis, president, Stuart W Adler, Albuquerque, president-elect, Earl L. Malone, Roswell, vice-president, and Lewis M Overton, Albuquerque, secretary treasurer

NEW YORK

"Operation Ragweed"—The major phase of "Operation Ragweed" was recently completed in Sullivan County in a county-wide drive jointly sponsored by the board of supervisors and *the Sullivan County Hotel Association Specially equipped motor* trucks sprayed 3,560 miles of state, county, and town roadside with 100,000 gallons of pollen-killing chemicals Spray equipment was fitted with floodlights to facilitate night operation during the week long effort

University News.—State University of New York College of Medicine at Syracuse announces the following promotions from assistant professor to associate professor of pathology, Drs John T Prior and Martin F Hilfinger Jr, from clinical assistant professor to clinical associate professor of medicine, Dr William G Woodin, and from instructor to assistant professor, Dr Barbara R Rennick (physiology), Dr Francis S Caliva (medicine), Dr William H. Bergstrom (pediatrics), and Dr Harold B Houser (medicine)——Dr Leonard D Fenninger, formerly chief of the section of general medicine of the National Cancer Institute, Bethesda, Md, has been appointed assistant dean and assistant professor of medicine at his alma mater, the University of Rochester School of Medicine and Dentistry, where from 1947 to 1952 he was a fellow in cancer research and an instructor in medicine During 1952 and 1953, Dr Fenninger was a U S Public Health Service surgeon

Society News.—The New York Rheumatism Association recently elected Dr Robert L Preston, president, Dr Mortimer E Ehrlich, vice-president, and Dr Bernard Rogoff, secretary treasurer (reelected)

Foreign Guests on Cardiology Program.—The scientific session of the New York Heart Association, Inc, Sept. 21, 8 30 p m, will be held in Hosack Hall, New York Academy of Medicine Building 2 E 103rd St. Total and Local Blood Volumes in Congestive Heart Failure" will be presented by Dr Gustave Nylin, Stockholm Sweden, and "Surgery of Acquired and Congenital Heart Disease" by Dr Russell C Brock, London, England

New York City

Courses on Physical Therapy.—The Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, and the New York University School of Education are again offering (Nov 22 to Dec 17, Feb 7 to March 4 1955, May 2 to May 27) a four week advanced course in physical rehabilitation methods with four points of university credit Tuition fee is $80, registration fee $8 Qualified veterans may enroll in the course under the provision of P L. 346 or P L 16 The course, which will cover (1) severe disabilities and their rehabilitation (2) skills and methods of functional activities and (3) clinical experience is open to certified physical therapists who have the approval of the curriculum director Applications and requests for information may be submitted to Mrs Edith

Buchwald Lawton, Director of Rehabilitation Courses for Physical Therapists, Institute of Physical Medicine and Rehabilitation, 400 E 34th St, New York 16

NORTH CAROLINA

Personal—Dr *Francis Bayard Carter*, professor of obstetrics and gynecology, Duke University School of Medicine, Durham, has been named an honorary fellow of the Society of Obstetricians and Gynecologists of Canada Dr Carter is president of the American Academy of Obstetrics and Gynecology and past president of the South Atlantic Obstetrical and Gynecological Society At Duke's 102nd commencement in June, he became the third faculty recipient of the Algernon Sydney Sullivan award——The President's Committee on Employment of the Physically Handicapped has bestowed awards on Dr Oscar Lee Miller, Charlotte, and Dr William M Roberts, Gastonia

Physicians Address Foreign Societies—Dr R Wayne Rundles and Dr Samuel P Martin III, associate professors of medicine at Duke Hospital and Duke University School of Medicine, Durham, will address the International Congress of Hematology at Paris, France, Sept 10 Dr Martin will discuss "Leukocyte Metabolism" and Dr Rundles, "Abnormal Proteins in Malignant Blood Disease" Dr Martin, one of Duke's seven Markle scholars, also will address a symposium in London, Oct 8, sponsored by the Ciba Foundation, discussing "Metabolic Response to Infection" He will visit medical schools in Belgium, France, Switzerland, Germany, Denmark, Sweden, and England before returning to Duke, Oct 18 Dr Rundles will visit the Royal Cancer Society and other blood laboratories in London and Paris as well as protein laboratories in Sweden before his return late in September A member of the Duke staff since 1945, Dr Rundles is the author of numerous articles on neuroanatomy, diabetes, and blood diseases

SOUTH CAROLINA

Personal—For outstanding service to the community of Greenwood, Dr Clough H Blake has been awarded the Rotary Club's "Man of the Year" plaque——Dr Rudolph Farmer, assistant superintendent and medical director of the South Carolina Sanatorium, State Park, has been appointed superintendent to succeed Col William H Moncrief, who recently resigned

Pediatricians Meet in Columbia—The South Carolina Pediatric Society will meet Sept 13 and 14 in Columbia At the Monday meeting, a joint session with the Columbia Medical Society at 7 p m, Dr Clifford G Grulee Jr, associate professor of pediatrics, Tulane University of Louisiana School of Medicine, New Orleans, will present "The Diagnosis and Treatment of Diphtheria—A Continuing Pediatric Problem" and Dr Harry B O'Rear, professor of pediatrics, University of Georgia School of Medicine, Augusta, "Treatment of Meningococcic Infections in Children" The Tuesday session will begin at 11 a m Dr Grulee will discuss "Infectious Hepatitis in Children," and Dr O'Rear will have as his topic "Cat Scratch Disease"

Dr Peeples Named State Health Officer—Dr George S T Peeples, Columbia, assistant health officer and director of local health services for the state board of health, was recently appointed state health officer to succeed the late Dr Benjamin F Wyman Dr Peeples, a county health officer in Horry and Dillon counties in 1926 and 1927, becoming assistant director of local health services in 1935, was appointed director of the division of crippled children in 1942 and in 1949 was named local health services director He received the degree of master of public health from Harvard University in 1937 During World War II he was commissioned a surgeon by the U S Public Health Service He is a former president of the State Public Health Association Dr Clarence L Guyton, Columbia, has been appointed assistant health officer

TENNESSEE

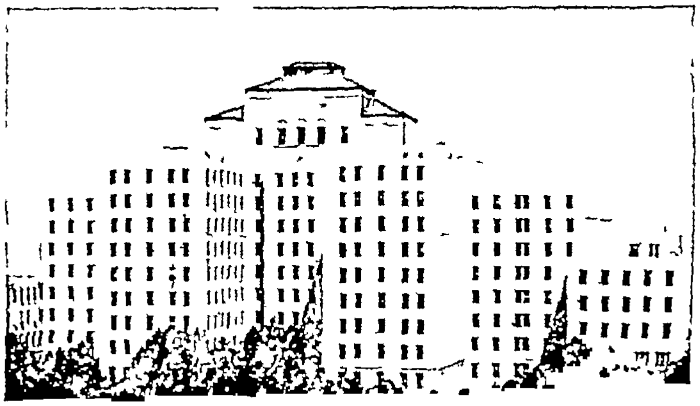
Society News—Newly elected officers of the Tennessee Radiological Society are Dr J Marsh Frere, Chattanooga, president, Dr John M Wilson, Memphis, vice-president, and Dr George K Henshall, Chattanooga, secretary-treasurer

Dr Raines Named Department Head—Dr Samuel L Raines, assistant professor in the department of urological surgery at his alma mater, the University of Tennessee College of Medicine, Memphis, has been advanced to professor and named head of the department Dr Raines has been a member of the college of medicine staff since 1929 He succeeds Dr Thomas D Moore, who has resigned as head of the department

TEXAS

Course in Electrocardiology—A course in practical electrocardiology will be presented, Dec 6 to 10, at the University of Texas Postgraduate School of Medicine, Houston, with the co-sponsorship of Baylor University College of Medicine and the Houston Heart Association Dr Demetrio Sodi-Pallares, chief of the department of electrocardiology, National Institute of Cardiology of Mexico City, will be guest lecturer each evening from 7 30 to 10 p m During the daytime hours, registrants will be invited to attend the various hospitals in the Texas Medical Center during periods when routine hospital tracings are being read by the hospital electrocardiologists In addition, registrants in smaller groups will be given individualized instruction in interpretation of specific tracings by various members of the faculties of both schools The course, which includes adult and pediatric electrocardiology, is primarily designed to acquaint general practitioners as well as internists with practical aspects of electrocardiology, with emphasis on those tracings commonly encountered in practice Further inquiry and advance registration may be made through the University of Texas Postgraduate School of Medicine (telephone LI-6986)

The New John Sealy Hospital—This hospital, recently dedicated at the University of Texas Medical Branch, Galveston, together with the R Waverley Smith Memorial Pavilion, covers some what over 10 acres The entire building, with the exception of the pavilion, is dedicated to the functions of a teaching hospital The operating department, which serves the entire hospital, is designed in a "radial" pattern A circumferential corridor circling this operating complex provides a "front" entrance to the operating, scrub-up, and anesthesia rooms as well as the spectators' galleries, of which every major room has one Among other special facilities are a fever therapy suite of two treatment and two rest rooms, separate suites for electrocardiography and basal metabolism, each accommodating three patients simultaneously, a blood bank with a five place donors' room, and a processing laboratory The total construction cost of the hospital exceeded 11 million dollars, about 9 million of which was contributed by the Sealy and Smith Foundation for the John Sealy Hospital



John Sealy Hospital

WASHINGTON

Annual Alfred Strauss Lecture—The department of surgery, University of Washington School of Medicine, Seattle, will again sponsor the annual Alfred A Strauss lecture, which will be presented by Dr Lester R Dragstedt, chairman, department of surgery, University of Chicago School of Medicine, on Oct 22 at 8 15 p m in the auditorium of the Health Sciences Building, University of Washington campus Dr Dragstedt will discuss "Etiology of Gastric and Duodenal Ulcer" Dr Dragstedt was previously affiliated with the physiology and pharmacology departments of the State University of Iowa and served as Nathan Smith Davis professor of physiology and pharmacology and head of the department at Northwestern University Medical School He received the A M A silver medal in 1947 for his work on vagotomy in the treatment of peptic ulcer and the A M A gold medal in 1950 for his exhibit on quantitative studies on mechanisms of gastric secretion Physicians, medical students, nurses, and others working with the medical profession are welcome to attend the Strauss lecture

WEST VIRGINIA

Hospital News—Morris Memorial Hospital for Crippled Children at Milton has received an endowment of $10,000 in U S treasury bonds The gift was made by Arthur B Koontz, Charleston, on behalf of the estate of his late brother, Patrick B Koontz.

Society News—Dr Edith L. Potter, associate professor of pathology, University of Chicago School of Medicine, and pathologist to the Chicago Lying-In Hospital, will be the guest speaker at the meeting of Kanawha Medical Society, Sept 14, in the evening The speaker will discuss Perinatal Morbidity and Foetal Salvage and will lead a round table discussion at Memorial Hospital in Charleston at 4 p m Members of all other component societies in the state are invited to this opening meeting of the fall season

Rural Health Conference.—The seventh annual Rural Health Conference, sponsored by the West Virginia State Medical Association, was held in the Century of Progress Hall at Jackson s Mill, Sept 2, under the auspices of the public relations committee, with the cooperation of the West Virginia Farm Bureau, the agricultural extension division of West Virginia University, and the state department of health Dr Charles E Staats Charleston, chairman, public relations committee, presided as moderator After an address of welcome by Dr Russel Kessel, Charleston, president of the state medical association, Mrs Dean Johnson, Buckhannon, president of the Farm Women s Council, presented Health Problems of Rural People," and Mr Edgar F Fisher Jr, Richmond, director, Virginia Council on Health and Medical Care, discussed the part rural groups have played in assuring the success of the program of his organization in Virginia At the morning session Dr Carll S Mundy Toledo, Ohio, vice-chairman of the A M A Council on Rural Health, presented "Roads to Rural Health The afternoon meeting was devoted to discussion by separate groups on nutrition, medical and hospital service plans, nursing problems, prevention and control of disease, and medical care in rural areas Physicians who served as moderators included Dr Newman H Dyer, Charleston, state director of health, and Dr William L. Cooke, Charleston, past president, Kanawha Medical Society An invitation to attend the meeting was extended to members of farm groups The West Virginia State Medical Association was host at a luncheon in the Mt Vernon dining hall

WISCONSIN

Bronze Bust of Dr Schweitzer—A bronze bust of Dr Albert Schweitzer, the gift of a group of hospital staff members and other Wisconsin residents to the University of Wisconsin, was recently unveiled in the lobby of the University Hospitals Madison The plaque on the bust reads Versatile scholar in theology and philosophy Distinguished contemporary interpreter of Bach Founder and for 40 years missionary surgeon of the hospital at Lamberence, French Equatorial Africa By his surpassing achievements in the service of God and his fellowmen Dr Schweitzer has pointed the way to a full life in medicine In his example the weak will find strength and the stalwart renewed courage and resolution " Among those participating in the unveiling were Dr William S Middleton dean of the medical school, University of Wisconsin president Edwin B Fred, and Dr Noel A Gillespie, associate in anesthesiology at University Hospitals, who, 30 years ago, worked with Dr Schweitzer at Lamberene In accepting the bust President Fred said Dr Schweitzer has carved from the jungle a remarkable oasis for the Africans among whom he has lived for the past 41 years He has saved thousands of lives with none of the appurtenances modern doctors find indispensable It is especially fitting that it be placed here, where lives are saved every day by dedicated men where young men are trained by precept and example to dedicate themselves to the saving of lives in the future "

GENERAL

Meeting on Pharmacology and Experimental Therapeutics—The interim meeting of the American Society for Pharmacology and Experimental Therapeutics will be held at Charlottesville, Va, Sept 6 to 8, under the joint sponsorship of the University of Virginia School of Medicine, Charlottesville, and the Medical College of Virginia, Richmond On Monday at 1 30 p m there will be a panel discussion on graduate education in pharmacology and on Tuesday at 9 15 a m, a panel discussion on the cellular localization of drugs and drug effects In all 151 additional presentations have been scheduled, and 16 papers will be read by title The pharmacology dinner will be held Tuesday, 7 p m, in the gymnasium

Fellowships for Research in Arthritis—The Arthritis and Rheumatism Foundation is offering the following research fellowships in the basic sciences related to arthritis

1 Predoctoral fellowships ranging from $1,500 to $3 000 per annum depending on the family responsibilities of the fellow tenable for one year with prospect of renewal.

2. Postdoctoral fellowships ranging from $4 000 to $6 000 per annum depending on family responsibilities tenable for one year with prospect of renewal

3 *Senior fellowships for more experienced investigators* carrying an award of $6 000 to $7,500 per annum, tenable for five years

The deadline for applications is Oct. 15 Applications will be reviewed and awards made in January, 1955 Information may be had from the Medical Director, The Arthritis and Rheumatism Foundation, 23 W 45th St, New York 36

Interim American Board of Occupational Medicine.—This board is negotiating with the American Board of Preventive Medicine relative to the grouping of occupational medicine with other nationally recognized professional specialties in the general field of preventive medicine For purposes of organization, it is desirable to know the number of candidates likely to apply for *certification in occupational medicine under such auspices* Interested physicians are invited to communicate with Dr Carl M Peterson, Secretary, Interim American Board of Occupational Medicine, 535 N Dearborn St, Chicago 10 Application forms and other essential information will be sent to inquirers as negotiations proceed Full instructions will include regulations governing basic eligibility, admission to certification without examination, examination procedure, fees, and other details

Cerebral Palsy Institutes—The national office of United Cerebral Palsy and its affiliates throughout the country have scheduled eight program institutes in September and October Each institute will start on Thursday noon and extend through Friday evening, immediately preceding regional conventions in each area The institutes and conventions have been scheduled as follows

Sept. 2 5 Pacific Region St. Francis Hotel San Francisco
Sept 9 12 Midwest Region Hotel Muehlebach Kansas City Mo
Sept. 16-19 Central Region, Hotel Cleveland Cleveland.
Sept. 23 26 New England Region Statler Hotel Boston.
Sept 30-Oct. 3 Eastern Region Benjamin Franklin Hotel Philadelphia
Oct. 7 10 Southeast Region Heidelberg Hotel Jackson Miss
Oct. 14-17 Southwest Region Roosevelt Hotel New Orleans
Oct. 21 24 Southern Region John Marshall Hotel Richmond Va

A summary of the program institute discussions will be presented on Saturday afternoon On Saturday evening the guest speaker will discuss "Legislation for the Physically Handicapped" The U C P 1954 annual convention is scheduled to be held at the Mayflower Hotel in Washington D C Nov 19 to 21

Meeting of Physiologists.—The sixth annual fall meeting of the American Physiological Society will be held at the University of Wisconsin Madison Sept 8 to 10 when 272 papers will be presented Session chairmen will include Dr Herbert S Gasser until recently director of the Rockefeller Institute for Medical Research New York and Dr Carl J Wiggers editor of *Circulation Research* formerly head of the department of physi ology at Western Reserve University School of Medicine, Cleveland On Sept 6 and 7, (1) a refresher course in the physiology of respiration will be conducted by Dr Julius H Comroe Jr, professor of physiology and pharmacology at the University of Pennsylvania Graduate School of Medicine, Philadelphia, and Hermann Rahn, Ph D, associate professor of physiology at the University of Rochester (N Y) School of Medicine and Dentistry, (2) a review of a long-range survey of the physiological sciences, sponsored by the American Physiological Society will reveal the results of a two year comprehensive study of physiology as a profession, and (3) members of the Physiology Study Section, U S Public Health Service, will meet to consider applications for grants-in-aid for research projects

Prevalence of Poliomyelitis—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States and its territories and possessions in the weeks ended as indicated

Area	Aug 7, 1954		Aug 8, 1953, Total
	Paralytic Type	Total Cases Reported	
New England States			
Maine	2	5	8
New Hampshire			8
Vermont			8
Massachusetts	4	14	19
Rhode Island		4	10
Connecticut	1	16	24
Middle Atlantic States			
New York	13	50	125
New Jersey	22	36	51
Pennsylvania		40	53
East North Central States			
Ohio	30	101	119
Indiana	18	39	40
Illinois	41	78	117
Michigan	30	95	158
Wisconsin	2	19	30
West North Central States			
Minnesota	8	28	139
Iowa	25	84	48
Missouri	16	30	58
North Dakota	1	5	14
South Dakota		1	6
Nebraska	22	32	12
Kansas	4	29	18
South Atlantic States			
Delaware	3	4	1
Maryland	5	8	32
District of Columbia	2	3	7
Virginia	22	39	47
West Virginia	6	10	39
North Carolina	15	54	51
South Carolina	4	15	10
Georgia	16	41	26
Florida	16	60	22
East South Central States			
Kentucky	15	48	28
Tennessee	5	54	62
Alabama	13	19	29
Mississippi	8	29	22
West South Central States			
Arkansas	4	9	21
Louisiana	10	18	18
Oklahoma	11	34	36
Texas	53	152	81
Mountain States			
Montana	1	4	6
Idaho		4	4
Wyoming	2	11	7
Colorado	6	16	16
New Mexico	2	11	7
Arizona		7	31
Utah		8	8
Nevada		9	5
Pacific States			
Washington	5	14	14
Oregon	4	9	13
California	118	211	167
Territories and *Possessions*			
Alaska	8	18	
Hawaii	1	3	3
Puerto Rico			
Total	594	1,033	1,878

Society News—Newly elected officers of the **American Dermatological Association** include Dr Richard S Weiss, St Louis, president, Dr Clark W Finnerud, Chicago, vice-president, and Dr J Lamar Callaway, Durham, N C, secretary——At the annual meeting of the **Society for Investigative Dermatology**, Dr Clarence S Livingood, Detroit, was elected president and Dr J Walter Wilson, Los Angeles, vice-president——At its annual meeting the **American Proctologic Society** elected the following officers Dr A W Martin Marino, Brooklyn, N Y. president, Dr Stuart T Ross, Hempstead, N Y, president-elect Dr Kenneth E Smiley, Los Angeles, vice-president, Dr Rufu C Alley, Lexington, Ky, treasurer; and Dr Karl Zimmerman Pittsburgh, secretary——At the annual business meeting of th **American Psychosomatic Society** the following physicians took office Dr Lawrence S Kubie, New York, president, Dr Stanley Cobb, Boston, president-elect, and Dr Theodore Lidz, New Haven, Conn, secretary-treasurer The next annual meeting wil be held May 4 and 5, 1955, at the Claridge Hotel in Atlantic City, N J——Officers of the **American Radium Society** fo 1954-1955 include Dr John E Wirth, Pasadena, Calif, president, Dr Grant H Beckstrand, Long Beach, Calif, president elect, Dr Norman A McCormick, Windsor, Ontario, Canada first vice-president, Dr W Edward Chamberlain, Philadelphia second vice-president, Dr Robert E Fricke, Rochester, Minn. secretary, and Dr Douglas J Roberts, Hartford, Conn. treasurer——The annual meeting of the **North Pacific Society of Neurology and Psychiatry** *was held at the* Harrison Ho Springs Hotel, Harrison Hot Springs, British Columbia, Canada April 2 and 3 Dr Harold G Wolff, New York, guest speaker presented "Headache Mechanisms" and "Participation of th Nervous System in Processes Altering Vulnerability of Tissue" The following officers were elected for 1954 Dr William Y Baker, Seattle, president, Dr Wendell H Hutchens, Portland Ore, president-elect, Dr John W Evans, Portland, Ore, secretary-treasurer, and Drs Robert S Dow, Portland, Ore, Dougla E Alcorn, Victoria, B C, and Donald E Stafford, Seattle executive committee

LATIN AMERICA

New Medical Journal—*Revista da associação medica brasileir* the official organ of the Brazilian medical profession, publishe its first issue in March The 128 page journal contains origina articles, clinical notes, editorials, correspondence, news, an abstracts The postal address of this quarterly publication i Caixa Postal 8 904, São Paulo, S P, Brazil

CORRECTION

Mosher Life-Saver—In a footnote in THE JOURNAL, Aug 7 1954, page 1297, the proper name Mosher was misspelled Th pharyngeal airway referred to was named after Dr Harris I Mosher, professor emeritus at Harvard Medical School

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr George F Lull, 535 North Dearborn St, Chicago 10, Secretary
1954 Clinical Meeting, Miami, Florida, Nov 29 Dec. 2.
1955 Annual Meeting, Atlantic City, N J, June 6-10
1955 Clinical Meeting, Boston, Nov 29 Dec 2.
1956 Annual Meeting, Chicago, June 11 15
1956 Clinical Meeting, Seattle, Nov 27-30

ACADEMY OF PSYCHOSOMATIC MEDICINE, New York, Oct 8 9 Dr Ethan Allan Brown, 75 Bay State Road, Boston 15, Secretary

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY, The Waldorf-Astoria, New York, Sept 19-24 Dr W L Benedict, 100 First Avenue Bldg, Rochester, Minn, Executive Secretary

AMERICAN ACADEMY OF PEDIATRICS, Palmer House, Chicago Oct 4-7 Dr E H Christopherson, 610 Church St, Evanston, Ill, Secretary

AMERICAN ASSOCIATION OF BLOOD BANKS, The Shoreham Washington, D C, Sept 13-16 Miss Marjorie Saunders, 3500 Gaston Ave, Dallas 4 Texas Secretary

AMERICAN ASSOCIATION OF MEDICAL RECORD LIBRARIANS, Sheraton-Cadillac Hotel, Detroit, Oct 4-8 Miss Doris Gleason, 510 N Dearborn St, Chicago 10, Executive Director

AMERICAN ASSOCIATION OF OBSTETRICIANS GYNECOLOGISTS AND ABDOMINAL SURGEONS, The Homestead Hot Springs, Va, Sept 9 11 Dr Frank R Lock, Bowman Gray School of Medicine, Winston Salem, N C Secretary

AMERICAN CANCER SOCIETY, Hotel Roosevelt, New York, Oct 17 24 Dr Charles S Cameron, 47 Beaver St, New York 4, Medical Director

American Clinical and Climatological Association Lake Placid Club Lake Placid N Y Oct. 14-16 Dr Marshall N Fulton 124 Waterman St., Providence 6 R. I Secretary

American College of Gastroenterology The Shoreham Washington D C Oct 25 30 Dr A Xerxes Rosslen 33 West 60th St. New York 23 Secretary

American Congress of Physical Medicine and Rehabilitation Hotel Statler Washington D C. Sept. 6-11 Dr Walter J Zeiter 30 N Michigan Ave Chicago 2 Executive Director

American Fracture Association Shamrock Hotel Houston Texas Oct. 11-14 Dr H W Wellmerling 626 Griesheim Bldg., Bloomington Ill. Secretary-General

American Heart Association Jung Hotel New Orleans Oct. 26-30 Mr Irving Hexter 44 East 23d St. New York 10 Secretary

American Hospital Association Palmer House Chicago Sept. 13-16. Dr E. L. Crosby 18 East Division St. Chicago 10 Director

American Medical Writers Association Hotel Sherman, Chicago Sept. 24 Dr Harold Swanberg 510 Maine St., Quincy Ill., Secretary

American Otorhinologic Society for Plastic Surgery The Waldorf Astoria, New York, Sept. 19 Dr Louis J Feit 66 Park Ave New York Secretary

American Public Health Association Memorial Auditorium Buffalo N Y Oct 11 15 Dr Reginald M Atwater 1790 Broadway New York 19 Executive Secretary

American Roentgen Ray Society Shoreham Hotel, Washington D C. Sept. 21 24 Dr Barton R. Young Germantown Hospital Philadelphia 44 Secretary

American Society of Anesthesiologists Netherland Plaza Hotel, Cincinnati Oct. 25-30 Dr J Earl Remlinger Jr 188 West Randolph St. Chicago 1 Secretary

American Society of Clinical Pathologists Shoreham Hotel Washington D C Sept 6 Dr Clyde G Culbertson 1040-1232 W Michigan St Indianapolis Secretary

Association of Life Insurance Medical Directors of America Royal York Hotel Toronto Canada Oct. 12-14 Dr Henry B Kirkland P O Box 594 Newark N J., Secretary

Association of American Medical Colleges French Lick Springs Hotel French Lick, Ind., Oct. 17 20 Dr Dean F Smiley 185 N Wabash Ave Chicago 1 Secretary

California Academy of General Practice, Statler Hotel Los Angeles, Oct 24-27 Mr Wm. W Rogers 450 Mission St. San Francisco Executive Secretary

Central Association of Obstetricians and Gynecologists Hotel Jefferson St. Louis Oct. 7-9 Dr Harold L. Gainey Suite 602 116 S Michigan Ave. Chicago 3 Secretary

Central Society for Clinical Research Drake Hotel Chicago Oct. 29 30 Dr Robert H. Ebert 950 East 59th St. Chicago 37 Secretary

Clinical Orthopaedic Society Sheraton Hotel Chicago Oct. 7 9 Dr John H. Moe 825 Nicollet Ave Minneapolis Secretary

College of American Pathologists The Shoreham Washington D C. Sept 6 Dr Arthur H Dearing, 203 N Wabash Ave Chicago 1 Executive Secretary

Colorado State Medical Society Broadmoor Hotel, Colorado Springs Sept 21 24 Mr Harvey T Sethman 835 Republic Building, Denver 2 Executive Secretary

Delaware Medical Society of Dover Oct. 11 13 Dr Norman L Cannon 1208 Delaware Ave Wilmington Executive Secretary

Gulf Coast Clinical Society Edgewater Park Miss Oct. 21 22 Dr F C Minkler Pascagoula Miss., Secretary

Indiana State Medical Association Murat Temple Indianapolis Oct. 26-28 Mr James A Waggener 23 East Ohio St. Indianpolis 4 Executive Secretary

Industrial Health Conference (Houston) Shamrock Hotel Houston Tex Sept. 23 25 Dr Sidney Schnur 411 Medical Arts Bldg., Houston 2, Tex Chairman.

Kansas City Southwest Clinical Society Kansas City Mo Oct. 4-7 Dr Ira C. Layton 306 E Twelfth St. Kansas City 6E Mo Secretary

Kentucky State Medical Association Brown Hotel Louisville Sept. 21 23 Dr Bruce Underwood, 620 S Third St. Louisville 2, Secretary

Michigan State Medical Society Sheraton-Cadillac Hotel Detroit Sept. 29-Oct 1 Dr L Fernald Foster 606 Townsend St., Lansing 15 Secretary

Midwestern Section of American Federation for Clinical Research Thorne Hall Auditorium Northwestern University Medical Campus, Chicago Oct 28 Dr R L Grissom Univ of Nebraska College of Medicine Dept of Internal Medicine Omaha 5 Secretary

Mississippi Valley Medical Society Hotel Sherman Chicago Sept. 22 24 Dr Harold Swanberg 510 Maine St. Quincy Ill. Secretary

Montana Medical Association Hotel Finlen Butte Sept. 16-19 Mr L R Hegland 1236 N 28th St. Billings Executive Secretary

National Association for Mental Health Hotel Statler New York Oct 23 25 Mr Robert M Heininger 1790 Broadway New York 19 Executive Director

National Proctologic Association Maryland Hotel Chicago Oct 7 9 Dr George E Mueller 59 E Madison St., Chicago 2 Executive Secretary

New Hampshire Medical Society Mt. Washington Hotel Bretton Woods Oct. 3-5 Dr W H. Butterfield 18 School St., Concord Secretary

Northern Minnesota Medical Association Willmar Sept. 10-11 Dr C L. Oppegaard Crookston Secretary

Omaha Mid-West Clinical Society Paxton Hotel Omaha Oct. 25-28 Dr Louis E. Moon 1031 Medical Arts Bldg. Omaha 2, Secretary

Oregon State Medical Society Heathman Hotel, Portland Oct. 13 16. Dr Charles E Littlehales 1115 S W Taylor St. Portland 5 Executive Secretary

Pennsylvania Medical Society of the State of Bellevue-Stratford Hotel Philadelphia, Oct. 17 22 Dr Harold B Gardner 230 State St. Harrisburg, Secretary

Regional Meetings American College of Physicians

- Bismarck, N D Sept. 11 Dr Robert B Radl 221 Fifth St. Bismarck, N D., Governor
- Midwest, Indianapolis Claypool Hotel Oct. 9 Dr Wendell A Shullenberger 3470 Central Ave Indianapolis, Chairman
- New England Hartford Conn Oct. 22. Dr John C. Leonard 80 Seymour St., Hartford Conn Chairman.
- Southeastern, Edgewater Gulf Hotel Edgewater Park, Miss Oct. 15 16 Dr E. Dice Lineberry 1529 N 25th St., Birmingham 4 Ala., Governor

Southwestern Surgical Congress Skirvin Hotel Oklahoma City Sept. 20-22. Dr C. R. Rountree 1227 Classen Drive Oklahoma City 3 Secretary

The Constantinian Society The Broadmoor Colorado Springs Colo Sept. 26-29 Dr C. F Shook, P O Box 1035-36 Toledo 1 Ohio Secretary

U S Chapter, International College of Surgeons Chicago Sept. 7-10 Dr Karl Meyer 1516 Lake Shore Dr., Chicago Secretary

Vermont State Medical Society Mt. Washington Hotel Bretton Woods N H., Oct. 3-5 Dr James P Hammond 337 South St. Bennington Secretary

Washington State Medical Association Davenport Hotel Spokane Sept. 18 22. Dr Bruce Zimmerman 1309 Seventh Ave Seattle 1 Secretary

Western Association of Railway Surgeons Sun Valley Idaho Sept. 23 25 Dr Leo L. Stanley 1322 Fifth Ave. San Rafael, Calif., Secretary

Wisconsin State Medical Society of Hotel Schroeder Milwaukee Oct. 5 7 Mr Charles H Crownhart 704 E Gorham St. Madison 3 Secretary

FOREIGN AND INTERNATIONAL

Commonwealth Health and Tuberculosis Conference, Royal Festival Hall London England, June 21-25 1955 Mr J H. Harley Williams Tavistock House North Tavistock Square, London W C 1 England, Secretary General

Conference of International Union Against Tuberculosis Madrid, Spain Sept. 26-Oct. 2, 1954 Secretariat, Escuela de Tisiologia Ciudad Universitaria Madrid Spain

Conference of the Solvay Institute of Sociology Universiti Libre de Bruxelles Brussels Belgium Oct. 18 23 1954 For information write Assistant to the Secretary A Dorsinfang Smets Solvay Institute of Sociology Parc Leopold Brussels 4 Belgium

Congress of International Association of Applied Psychology London, England July 18-23 1955 Dr C B Frisby National Institute of Industrial Psychology 14 Welbeck St. London W 1 England President

Congress of International Association for the Prevention of Blindness New York N Y U S A., Sept. 12 17 1954 Professor Franceschetti 2 avenue Mirmot, Geneva Switzerland Secretary-General

Congress of the International Diabetes Federation Cambridge England July 4-8 1955 Mr James G L. Jackson 152 Harley St., London W 1 England Executive Secretary General.

Congress of International Society of Medical Hydrology Vichy Paris, and Enghien France Sept. 24-27 1954 Dr Francon 55 rue des Mathurins Paris 8 France. Secretary-General

Health Congress of the Royal Sanitary Institute Bournemouth England April 26-29 1955 Mr P Arthur Wells Royal Sanitary Institute 90 Buckingham Palace Road London S W 1 England Secretary

Inter American Congress of Radiology Shoreham Hotel Washington D C. U S A., April 24-29 1955 Dr Eugene P Pendergrass 3400 Spruce St. Philadelphia 4 Pa U S A Secretary-General.

Inter American Session American College of Surgeons Universidad Mayor de San Marcos de Lima, Lima Peru, S A., Jan. 11 14 1955 Dr Michael L. Mason 40 East Erie St. Chicago 11 Ill., U S A., Secretary

International Anatomical Congress Paris, France July 25-30 1955 Prof Gaston Cordier 45 rue des Saints-Pères Paris 6 France, Secretary-General

International Anesthesia Research Society Ambassador Hotel Los Angeles Calif U S A., Oct. 10-14 1954 For information write Dr T H. Seldon, 102 110 Second Avenue S W., Rochester Minn., U S A.

International Congress of Biochemistry Brussels Belgium Aug 1-6 1955 Prof C Liebecq 17 Place Delcour Liege Belgium Secretary-General

International Congress of Clinical Pathology, Washington, D C., U S A, Sept 6-10, 1954 Dr Robert A Moore, University of Pittsburgh, Schools of the Health Profession, Pittsburgh 13, Pa, U S A, Chairman, Committee on Arrangements

International Congress of Comparative Pathology, Lausanne, Switzerland, May 26 31, 1955 Professor Hauduroy, 19 rue Cesar Roux, Lausanne, Switzerland, Secretary General

International Congress on Diseases of the Chest, Barcelona, Spain, Oct 4-8, 1954 Mr Murray Kornfeld, 112 East Chestnut St, Chicago 11, Ill U S A, Executive Secretary

International Congress of Hematology, Paris, Sept 6 11, 1954 Dr Jean Bernard, 86 rue d'Assas Paris 6^e France, Secretary

International Congress of the History of Medicine, Rome and Salerno, Italy, Sept 13-20, 1954 For information write Segreteria XIV Congresso Internazionale di Storia della Medicina Instituto di Storia della Medicine Citta Universitaria, Rome Italy

International Congress of Hydatid Disease, *Madrid, Spain, Sept* 25-30, 1954 Dr Jesus Calvo Melendro, Hospital Provincial, Sorea, Spain, Secretary-General

International Congress of Industrial Medicine, Naples, Italy, Sept 13 19, 1954 Professor Scipione Caccuri, Director Institute of Industrial Medicine Policlinico, Naples, Italy, Chairman, Organizing Committee.

International Congress of Internal Medicine, *Stockholm* Sweden Sept 15 18 1954 Professor Anders Kristenson, Karolinska Sjukhuset Stockholm 60, Sweden, Secretary General

International Congress of Military Medicine and Pharmacy, Luxemburg Luxemburg Nov 7-12 *1954 Colonel A R* Vernengo, Direccion General de Sanidad Militar, Pozos 2045, Buenos Aires, Argentina, S A, Secretary-General

International Congress of Nutrition Amsterdam, Netherlands Sept 13 17, 1954 Dr M van Eekelen, Centraal Instituut voor Voedingsonderzoek T N O, 61 Catharynesingel, Utrecht, Netherlands General Secretary

International Congress of Ophthalmology University of Montreal and McGill University, Montreal Canada, Sept 9 11, 1954, and Waldorf-Astoria New York N Y U S A, Sept 12-17, 1954 Dr William L Benedict 100 First Avenue Building Rochester Minn, U S A, Secretary General

International Congress of Plastic Surgery Stockholm, Sweden Aug 1-4, 1955, and Uppsala, Sweden, Aug 5, 1955 Dr Tord Skoog, Uppsala, Sweden, General Secretary

International Federation of Medical Student Associations Rome Italy Oct 1 5, *1954* Mr Jorgen Falck Larsen, 12, Kristianiagade, Copenhagen Ø Denmark, General Secretary

International Hospital Congress, Lucerne, Switzerland, May 30 June 3 1955 Capt J E Stone International Hospital Federation, 10 Old Jewry, London, E C 2, *England, Hon Secretary*

International Poliomyelitis Congress University of Rome, Orthopedic Clinic, Rome, Italy, Sept. 6-10, 1954 Mr Stanley E Henwood, 120 Broadway, New York 5, N Y, U S A, Executive Secretary

International Society of Blood Transfusion *Paris France, Sept 12 19* 1954 For information write Colonel Julliard, Société Internationale de Transfusion Sanguine, 53 boulevard Diderot, Paris 12^e, France

International Society for Cell Biology, Leiden, Netherlands, Sept 1 8, 1954 Professor *Peter J Gaillard, University of Leiden, Leiden,* Netherlands, Secretary

International Society of Geographical Pathology, Washington D C U S A, Sept 6-10, 1954 Professor Fred C Roulet Hebelstrasse 24 *Basel, Switzerland, Secretary* General

International Surgical Congress, Geneva, Switzerland, May 23 26, 1955 Dr Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois U S A, Secretary-General

Japan Medical Congress, Kyoto University and Kyoto Prefectural Medical College, Kyoto, Japan, April 1-5, 1955 Dr Mitsuharu Goto, University Hospital Medical Faculty of Kyoto University, Kyoto, Japan, *Secretary-General*

Latin American Congress of Anesthesiology, Sao Paulo, Brazil, S A, Sept. 12-18, 1954 Dr Zairo E G Vieira, Praca Floriano, 55-7°, And, Rio de Janeiro, Brazil, S A, Secretario

Latin American Congress of *Physical Medicine, Lima* Peru, S A, Feb 14-19, 1955 Dr Cassius Lopez de Victoria, 176 East 71st St, New York 21, N Y, U S A, Executive Director

Medical Journalism Meeting, Exposition Universelle Romaine, Rome, Italy, Sept 30, 1954 Dr H Clegg, B M A House, Tavistock Square, London W C 1, England, Secretary

Medical Women's International Association Congress, Lake Garda, Italy, Sept 15-21, *1954* Dr *Ada Chree Reid, 118 Riverside Drive New* York 24 N Y, U S A, President.

Pan-American Academy of General Practice, Lima, Peru, S A, Feb 11-25, 1955 Dr Arturo Martinez, 54 East 72d St, New York 21, N Y U S A, Secretary

Pan American Homeopathic Medical Congress, Hotel Gloria, Rio de Janeiro, Brazil, S A, Oct. 2-13, 1954 Dr Paul S Schantz, 103 West Main St, Ephrata, Pa, U S A, Executive Secretary

Pan-Pacific Surgical Congress, Honolulu, Hawaii, Oct 7-18, 1954 Dr F J *Pinkerton* Suite 7, Young Bldg, Honolulu 13 Hawaii Director General

World Congress of Cardiology, Washington, D C, U S A., Sept. 12 18, 1954 Dr L. W Gorham, 44 East 23d St, New York 10, N Y, U S A, Secretary-General

World Congress of International Society for the Welfare of *Cripples*, Scheveningen-The Hague, Netherlands, Sept. 13 17 1954 Secretariat Miss H P Post, Pieter Lastmarkade 37, Amsterdam Z, Netherlands.

World Medical Association, Rome, Italy, Sept. 26-Oct 2, 1954 Dr *Louis H Bauer, 345 East 46th St*, New York 17, N Y, U S. A., Secretary-General

EXAMINATIONS AND LICENSURE

National Board of Medical Examiners *Parts I and II* Held in approved medical schools where there are five or more candidates Dates Sept 7-8 (Part I only) Candidates may file examinations at any time but the National Board must receive them at least six weeks before the date of the examination they wish to take New candidates should apply by formal registration, registered candidates should notify the board by letter Sec, Dr John P Hubbard, 133 S 36th St, Philadelphia 4

BOARDS OF MEDICAL EXAMINERS

Arizona * *Examination and Reciprocity* Phoenix, Oct 13 15, Jan 12 14, 1955 and April 13 15, 1955 Ex Sec, Mr Robert Carpenter, 401 Security Bldg, Phoenix

California *Written* San Diego, Aug 23 26 Sacramento, Oct 18 21 *Oral* San Diego Aug 21, Los Angeles, Nov 20 *Oral and Clinical Examination for Foreign Medical School Graduates* Sec, Dr Louis E Jones 1020 N Street, Sacramento

Illinois *Examination and Reciprocity* Chicago, Oct 5 7 Supt of Registration Mr Frederic B Selcke, Capitol Bldg Springfield

Minnesota * *Examination and Reciprocity* Minneapolis Oct 19 21 Sec, Dr E M Jones 230 Lowry Medical Arts Bldg, St Paul 2

Montana *Examination and Reciprocity* Helena, Oct 4 Sec, Dr S A Cooney 214 Power Block, Helena

New Hampshire *Examination and Reciprocity* Concord, Sept 8 9 Sec, Dr John S Wheeler, 107 State House, Concord

New Mexico * *Examination and Reciprocity* Santa Fe Oct. 11 12 Sec., Dr R C Derbyshire, 227 E Palace Ave Santa Fe

North Carolina *Endorsement* Rocky Mount Oct 4 Sec, Dr Joseph J Combs, *Professional Building Raleigh*

Ohio *Examination* Columbus, Dec 13-15 *Reciprocity* Columbus, Oct 4 Sec, Dr H M Platter, Wyandotte Bldg, Columbus 15

Oregon * *Examination and Reciprocity* Portland, Oct 14-16 Exec Sec., Mr Howard I Bobbitt, 609 Failing Building Portland 4

Tennessee * *Examination* Memphis, Sept 29 30 Sec, Dr H W Qualls, 1635 Exchange Bldg, Memphis

Texas * *Examination and Reciprocity* Fort Worth, Dec 2-4 Sec, Dr M H Crabb, 1714 Medical Arts Bldg, Fort Worth 2

West Virginia *Examination* Charleston Oct 11 Sec, Dr Newman H Dyer, State Office Bldg No 3, Charleston 5

Wisconsin * *Reciprocity* Madison, Oct 15 Sec, Dr Thomas W Tormey, Room 1140 *State* Office Bldg, Madison 2

Wyoming *Examination and Reciprocity* Cheyenne, Oct 4 Sec Dr Franklin D Yoder, State Office Bldg Cheyenne

Alaska * On application Sec, *Dr W M* Whitehead, 172 *South Franklin* St, Juneau

Guam The Commission on Licensure will meet whenever a candidate appears or submits his credentials Sec, Dr Benedict Cooper Agana

Puerto Rico *Examination* San Juan, Sept 7 11 Sec, Dr Joaquin Mercado Cruz, Box 9156, Santurce

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska On application Juneau or other towns in Territory as decided by Board *Reciprocity* On application Sec, Dr C Earl Albrecht Box 1931 Juneau

Arkansas *Examination* Little Rock, Oct 5-6 Sec Dr Louis E Gebauer, 1002 Donaghey Bldg, Little Rock

Colorado *Examination* Denver, Sept 8 9 Sec, Dr Esther B Starks 1459 Ogden St, Denver 18

Michigan Examination Detroit and Ann Arbor, Oct 8 9 Sec, Mrs Anne Baker, Mason Bldg, Lansing 2

Nebraska *Examination* Omaha, Oct 5-6 Director Mr *Husted* K. Watson, Room 1009, *State Capitol Bldg*, Lincoln 9

Oregon *Examination* Portland, Sept 11 and Dec 4 Sec, Mr Charles D Byrne, State Board of Higher Education, Eugene

Tennessee *Examination* Memphis, Sept 20-21 Sec, Dr O W *Hyman* 874 Union Ave, *Memphis* 3

Texas *Examination* Austin Oct 22-23 Address, Mrs Betty Ratcliff, Chief Clerk, 407 Perry-Brooks Bldg, Austin

Wisconsin *Examination* Madison, Sept 24 *Milwaukee, Dec 4 Sec.,* Mr W H Barber, 621 Ransom St, Ripon.

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*Basic Science Certificate required

DEATHS

Haviland, Frank Ross ⊕ Syracuse, N Y , born Jan 18, 1880, Syracuse University College of Medicine, New York 1903, formerly on the faculty of Columbia University College of Physicians and Surgeons in New York, where he was clinical professor of psychiatry at Fordham University School of Medicine at one time clinical professor of neurology at the Long Island College Hospital in Brooklyn, life fellow of the American Psychiatric Association, life member of the New York Society for Clinical Psychiatry, member of the National Association for Mental Health, emeritus member, Syracuse Mental Hygiene Committee and the Syracuse Academy of Medicine from 1942 to 1946 neuropsychiatrist with an armed forces induction team, for which he received the Selective Service Medal, consulting psychiatrist at the Marcy (N Y) State Hospital and the Syracuse Psychopathic Hospital, at one time on the staff of the Brooklyn State Hospital served as director of psychiatry at the Manhattan State Hospital in New York City, died June 27, aged 74, of emphysema.

Egdahl, Anfin ⊕ Rockford, Ill , born in Menomonie, Wis , Dec 25, 1875, Johns Hopkins University School of Medicine, Baltimore, 1904, member of the American Trudeau Society, past president of the Winnebago County Medical Society and the Winnebago County Tuberculosis Association, at one time on the faculty of the State University of Iowa College of Medicine in Iowa City, since 1946 county medical examiner; served during World War I, later joined the reserves, serving as commanding officer of the 73rd evacuation hospital, held the rank of colonel when he was transferred to the inactive reserve at one time head of the department of preventive medicine at the University of North Dakota School of Medicine in Grank Forks and director of public health of the state of North Dakota chairman, board of trustees of the Rockford Municipal Sanatorium, died July 6, aged 78, of coronary occlusion

Kibler, Clarence LeRoy ⊕ Columbia, S C born July 16, 1873 Maryland Medical College, Baltimore, 1907, past president of the Columbia Medical Society and vice-president of the South Carolina State Medical Association, past president of the Seaboard Air Line Railroad Surgeons' Association formerly member of the board of trustees of Newberry College during World War I a member of the regional board of examiners for many years state supervisor in ophthalmology for the department of public welfare and vice president of the Union National Bank, which he helped organize, member of the medical staffs of Columbia and Providence hospitals and of Baptist Hospital, where he died June 19, aged 80

Schlesinger, Lee Cahn ⊕ New Orleans born in Memphis Tenn , March 29, 1912, University of Tennessee College of Medicine, Memphis, 1935, specialist certified by the American Board of Orthopaedic Surgery, assistant professor of clinical orthopedics at Tulane University of Louisiana School of Medicine member of the American Academy of Orthopaedic Surgeons fellow of the American College of Surgeons, served during World War II consultant in orthopedic surgery at Bogalusa (La) Medical Center; affiliated with Charity Hospital and Touro Infirmary consultant in orthopedics at Flint-Goodridge Hospital orthopedic surgeon for Louisiana State Crippled Childrens Program consulting orthopedic surgeon for the Louisville and Nashville Railroad, died June 27, aged 42

Blesse, Frederick A., Brigadier General, U S Army, retired, Richmond, Va born in Elgin Ill , Nov 22 1888 the Hahnemann Medical College and Hospital, Chicago 1913 entered the Medical Corps of the U S Army as a first lieutenant in January 1918 promoted through the various ranks to that of colonel, July, 1943, promoted to brigadier general in April 1948 retired Nov 30 1948, remaining on active duty until Nov 30, 1950 served as chief surgeon in North Africa during World War II and for three years with the Army Ground Forces in Fort Monroe held the Distinguished Service Medal and the Legion of Merit, since December, 1950 director of the Henrico County Health Department died June 4, aged 65, of coronary thrombosis

Fellows, Ralph Manos ⊕ Wauwatosa, Wis , born in Salisbury, Mo Aug. 28 1894, University and Bellevue Hospital Medical College, New York 1922 specialist certified by the American Board of Psychiatry and Neurology, member of the American Psychiatric Association and the Central Neuropsychiatric Association, fellow of the American College of Physicians, served during World Wars I and II, at one time vice president of the Kansas Society for Mental Hygiene resigned in 1940 as superintendent of Osawatomie (Kan) State Hospital formerly clinical director of the Menninger Clinic in Topeka, Kan medical director of the Milwaukee County Asylum for Chronic Insane died in Milwaukee June 20, aged 59, of heart disease and hypertension.

Nelson, Moses Russell, New York City, born in Radnor, Pa , March 21, 1895 University of Pennsylvania School of Medicine, Philadelphia, 1920, assistant clinical professor of obstetrics and gynecology at the New York Medical College, Flower and Fifth Avenue Hospitals, fellow of the International College of Surgeons Harlem Surgical Society, American Academy of Science, American Museum of Natural History, and the American College of Surgeons, member of the National Medical Association, consultant at Community Hospital in Newark N J affiliated with the New York City Hospital as associate visiting obstetrician and gynecologist, died June 24, aged 58, of cerebral hemorrhage

Gamble, Hugh Agnew ⊕ Greenville, Miss born in Saltillo, Aug 19, 1876, Medical Department of Tulane University of Louisiana, New Orleans, 1904, member of the House of Delegates of the American Medical Association from 1930 through 1932 and in 1937, member of the Southern Surgical Association and the Southeastern Surgical Congress, fellow of the American College of Surgeons· member of the founders group of the American Board of Surgery past president of the Mississippi State Medical Association Mississippi State Hospital Association and the Delta Medical Society· city councilman on the staff of the King's Daughters Hospital, where he died July 11, aged 77, of cancer

Rafsky, Henry Aaron ⊕ New York City· University and Bellevue Hospital Medical College New York 1913 specialist certified by the American Board of Internal Medicine, member of the American Gastro-Enterological Association and the National Gastroenterological Association fellow of the American College of Physicians· clinical professor of medicine (gastroenterology) New York Post-Graduate Medical School and Hospital Columbia University president of the medical board of the Home and Hospital of the Daughters of Jacob on the staff of the Lenox Hill Hospital died in Atlantic Beach N Y., July 31, aged 64

Cress, Orlando Elsworth ⊕ Van Wert Ohio, Eclectic Medical College Cincinnati 1921 served as county coroner· veteran of World Wars I and II, on the staff of the Van Wert County Hospital, died June 19, aged 65, of coronary occlusion

Crossen, Henry Francis ⊕ Detroit Indiana University School of Medicine, Indianapolis, 1919 specialist certified by the American Board of Otolaryngology fellow of the American College of Surgeons affiliated with Harper, St. Joseph's Mercy and Mount Carmel Mercy hospitals senior otologist at the Detroit House of Correction died June 20 aged 60, of coronary thrombosis

Doyle, Leo Walter Jr., San Francisco Northwestern University Medical School Chicago 1943 at one time assistant clinical professor of obstetrics and gynecology at the University of California Medical School served during World War II died June 28 aged 35 of acute hemorrhagic pancreatitis.

⊕ Indicates Member of the American Medical Association

Dunigan, Jay Thomas ⊕ Albany, N Y, Albany Medical College, 1934, served during World War II, physician for the city public schools, on the staff of St Peter's Hospital, died in Portland, Me, July 7, aged 43

Eastman, Claude Washington, Carlin, Nev, Washington University School of Medicine, St Louis, 1904, for many years district surgeon for the Southern Pacific Railroad, died in Elko (Nev) General Hospital June 24, aged 80, of uremia and hypostatic pneumonia

Eldridge, Jesse Cleveland, Chattanooga, Tenn, Vanderbilt University School of Medicine, Nashville, 1913, served during World War I, at one time health director of Hamilton County, died in St Petersburg, Fla, June 11, aged 67, of bronchopneumonia

English, Merton Alden, Chevy Chase, Md, George Washington University School of Medicine, Washington, D C, 1915, died July 25, aged 75

Fender, Marion Sims, Ehrhardt, S C, Emory University School of Medicine, Atlanta, 1915, also a druggist, for many years chairman and member of the board of trustees of the school district, died in the Columbia Hospital June 17, aged 63, of cerebral thrombosis

Fulton, William Van Voorhis ⊕ Everett, Wash, Jefferson Medical College of Philadelphia, 1912, died in Everett General Hospital July 5, aged 71, of acute myocardial infarction

Gay, Clarence Bertram ⊕ Vineyard Haven, Mass, University of Pennsylvania Department of Medicine, Philadelphia, 1899, formerly supervising censor, executive councilor, and president of the Worcester North District Medical Society, died in Martha's Vineyard Hospital in Oak Bluffs April 30, aged 81, of arteriosclerotic heart disease

Goldman, Max ⊕ Kansas City, Mo, Kansas City Medical College, 1901, past president of the Jackson County Medical Society, fellow of the American College of Surgeons, affiliated with Menorah and St Mary's hospitals, died July 13, aged 73, of cardiac disease

Goodloe, Hart, Tallahassee, Fla, University of Louisville (Ky) Medical Department, 1900, served during World War I, died in Biloxi, Miss, April 21, aged 79, of myocardial infarction and coronary occlusion

Goodrich, Elmer Everett ⊕ Holdenville, Okla, Barnes Medical College, St Louis, 1902, served during World War I, formerly practiced in Chickasha, where he was director of the county-city health unit, died June 18, aged 79

Grainger, Gustavius A ⊕ Farmington, W Va, Vanderbilt University School of Medicine, Nashville, Tenn, 1904, died May 4, aged 71, of cardiac decompensation

Groman, Herman Charles ⊕ Hammond, Ind, Rush Medical College, Chicago, 1907, formerly health commissioner of Hammond, died in White Lake, Mich, July 21, aged 72

Halleck, Frank Dana ⊕ Bowling Green, Ohio, Ohio Medical University, Columbus, 1898, past president of the Wood County Medical Society, died in Wood County Hospital May 14, aged 81, as the result of a fall

Herskowitz, Max, New York City, Long Island College Hospital, Brooklyn, 1918, died July 2, aged 57, of heart disease

Hollingsworth, Marshall P ⊕ Princeton, Ind, Medical College of Indiana, Indianapolis, 1891, formerly county coroner, medical examiner for the draft board during World Wars I and II, at one time medical examiner for the pension board, for many years medical examiner for the Metropolitan Life Insurance Company and the Southern Railway, died June 16, aged 92, of cerebral thrombosis

Howell, Samuel Monroe ⊕ Cartersville, Ga, Atlanta School of Medicine, 1913, served during World War I, founder of the Howell-Quillian Clinic-Hospital, died April 13, aged 64, of carcinoma of the bladder

Huffman, Logan Herbert, Oklahoma City, University of the South Medical Department, Sewanee, Tenn, 1903, served during World War I, died in St Anthony's Hospital June 19, aged 81

James, Byrd, Chicago, Meharry Medical College, Nashville, Tenn, 1915, died in the Provident Hospital July 15, aged 73, of bronchopneumonia and carcinoma of the esophagus

James, Charles Stanton ⊕ Omaha, Omaha Medical College, 1899, University and Bellevue Hospital Medical College, New York, 1900, fellow of the American College of Surgeons, affiliated with St Catherine's Hospital and Doctors Hospital, where he died May 29, aged 76, of carcinoma of the stomach

Jenkins, Harry Loveless ⊕ Arcata, Calif, University of California Medical School, San Francisco, 1925, member of the American Academy of General Practice, served during World War I, died in the Trinity Hospital July 6, aged 57

Johnson, Walter Brenaman, Cambridge, Md, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1928, secretary-treasurer of the Dorchester County Medical Society, county and city health officer, while in Cumberland, served as city and county health officer, formerly health officer of Caroline County at Denton, president of the Rotary Club, on the staff of the Cambridge Hospital, died June 4, aged 52, of cerebral hemorrhage

Jones, John M ⊕ Millersburg, Ohio, Starling Medical College, Columbus, 1895, in 1917 appointed chief medical examiner for Holmes County Draft Board, died July 6, aged 83

Kincheloe, John E ⊕ Hardinsburg, Ky, Kentucky School of Medicine, Louisville, 1899, died June 25, aged 76, of coronary thrombosis

King, Ossian Homer ⊕ Hot Springs National Park, Ark, College of Physicians and Surgeons, Little Rock, 1911, specialist certified by the American Board of Ophthalmology, member of the American Academy of Ophthalmology and Otolaryngology, past president of the Garland County Medical Society, on the staff of St Joseph's Hospital, died in Fort Roots Hospital, North Little Rock, June 15, aged 67, of lower nephron nephrosis, thrombosis, and arteriosclerosis

Knoop, William A ⊕ Chesterfield, Ill, Northwestern University Medical School, Chicago, 1905, died in Carlinville July 6, aged 73, of arteriosclerotic heart disease

Lee, Elbert Johnson Jr ⊕ St Louis, Barnes Medical College, St. Louis, 1898, served during World War I, at one time associated with the U S Public Health Reserve, member of the state legislature, 1943-1944, formerly superintendent of the Charles B Towns Hospital in New York, City Sanatorium, and City Hospital, served on the staffs of the Barnes Hospital and the Missouri Baptist Hospital, where he died June 20, aged 77, of coronary thrombosis

Leland, John Tyndan ⊕ Mill Valley, Calif, the Hahnemann Medical College and Hospital, Chicago, 1899, died suddenly July 20, aged 80, of cerebral hemorrhage

Lichtenstein, Perry Maurice ⊕ New York City, Cornell University Medical College, New York, 1910, also a lawyer; for many years resident physician in Tombs Prison, medical assistant to district attorney, author of "A Doctor Studies Crime", died June 14, aged 67

Lukins, Aaron Tomlin ⊕ Tacoma, Wash, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910, served with the British Expeditionary Force overseas during World War I, past president of the Whitman County Medical Society and Lewis County Medical Society, died April 14, aged 71, of cerebral thrombosis and arteriosclerosis

McAfee, James D, Cleveland, Homeopathic Hospital College, Cleveland, 1891, past president of the old city board of health, superintendent of the Cleveland City Hospital from 1906 to 1913, died June 26, aged 92, of coronary occlusion

McCleery, Thomas Sandrock ⊕ Hazel Crest, Ill, Chicago Medical School, 1936, health officer, on the staff of the Hazel Crest General Hospital, and the Illinois Central Hospital in Chicago, where he died July 26, aged 55, of ruptured dissecting aneurysm

McClelland, Willis Barr ⊕ Franklin, Pa, Boston University School of Medicine, 1931, served during World War II, member of the American Trudeau Society, formerly affiliated with the Pennsylvania State Sanatorium for Tuberculosis in Hamburg, died June 6, aged 48

McDiarmid, Thomas Scott ⊕ Gadsden, Ala , Birmingham Medical College, 1909, served during World War I, died July 4, aged 70, of carcinoma of the lung

McEvoy, Frank Edward ⊕ Providence, R I , University of Pennsylvania School of Medicine, Philadelphia, 1913, specialist certified by the American Board of Surgery; member of the New England Surgical Society, past president of the Providence Surgical Society, fellow of the American College of Surgeons affiliated with State Hospital for Mental Diseases in Howard and the Roger Williams General and St. Joseph's hospitals, died July 15, aged 66, of carcinoma of the prostate

Mainegra, Robert James, New Orleans; Tulane University of Louisiana School of Medicine, New Orleans, 1906 died June 14, aged 71

Maker, Ralph Waldo, Acampo, Calif , College of Medical Evangelists, Loma Linda and Los Angeles, 1918 for many years on the staff of the Glendale (Calif) Sanitarium and Hospital and the Norwalk (Conn) State Hospital, on the staff of the Stockton (Calif) Hospital, died July 9, aged 70, of cerebral embolism.

Malmstone, Francis A ⊕ Griffith, Ind , Chicago College of Medicine and Surgery, 1914, on the staffs of St. Margaret Hospital in Hammond, St. Catherine s, Methodist, and St. Mary s Mercy hospitals in Gary· died in the American Hospital in Paris, France, July 2, aged 77, of cardiac thrombosis.

Martin, Robert Alfonzo ⊕ Pell City, Ala., Vanderbilt University School of Medicine, Nashville, 1901, on Jan 8, 1953, the Greater Pell City Chamber of Commerce sponsored a "Dr Martin Day" honoring him for the 50 years of medical service and friendship that he had given this community, medical director and owner of the Pell City Infirmary; died in the Ochsner Foundation Hospital, New Orleans, July 10, aged 74, of coronary thrombosis

Moss, John Gaines ⊕ Johnson City, Tenn , Chattanooga Medical College, 1901, member of the Southeastern Surgical Congress, fellow of the American College of Surgeons, served in France during World War I, affiliated with the Memorial Hospital, died June 18, aged 75

Mullikin, Clarence William ⊕ Greensburg, Ind , Indiana University School of Medicine, Indianapolis, 1908, died in Tucson Ariz., April 30, aged 73, of peritonitis, paralytic ileus acute obstructive cholecystitis, and fatty degeneration of the liver

Nahigan, Matthew Nigohos, Los Angeles, Yale University School of Medicine, New Haven, 1907 affiliated with St. Vincent Hospital, where he died June 26, aged 77, of heart disease

Natherson, Frank Marion ⊕ Parma, Ohio Ohio State University College of Medicine, Columbus 1934 affiliated with Evangelical Deaconess Hospital in Cleveland, died June 19, aged 46, of coronary thrombosis

Nathorff, Erich ⊕ New York City, Friedrich Wilhelms Universitat Medizinische Fakultät, Berlin, Prussia Germany, 1914 co author of several standard German textbooks· died in Atlantic City, N J June 25, aged 64, of coronary thrombosis

Neil, James Benton ⊕ Knoxville, Tenn , Vanderbilt University School of Medicine, Nashville, 1912, died in Fort Sanders Hospital June 21 aged 66, of endocarditis

Newton, Charles Irving ⊕ Geneseo, N Y , University of Michigan Homeopathic Medical School, Ann Arbor, 1907 died July 7 aged 70

O'Neil, Dillon Garrett ⊕ Chicago Georgetown University School of Medicine, Washington, D C , 1913, served during World War I died in the Veterans Administration Hospital in Hines Ill , July 31, aged 67, of bilateral bronchopneumonia

Paulus, Clarence Allen ⊕ Telford Pa. Medico-Chirurgical College of Philadelphia, 1915 served during World War I affiliated with Grand View Hospital in Sellersville, where he died May 30, aged 68, of ruptured aneurysm of the abdominal aorta

Peiffer, Charles Oscar, Philadelphia, Jefferson Medical College of Philadelphia, 1904 associated on the staffs of Episcopal Hospital and Stetson Hospital died June 29 aged 76, of arteriosclerosis and renal disease

Powers, Arthur Linn, Locke, N Y , University of the City of New York Medical Department, 1890 died July 2, aged 88

Rachlin, William ⊕ Brooklyn New York University Medical College, New York, 1898 consulting physician at the Maimonides Hospital, died in Manhasset July 21, aged 79, of acute uremia.

Randall, Emma Jean Pearson, Van Wert, Ohio, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1899, died in Toledo, July 10, aged 79, of cancer

Reed, John Chamberlain ⊕ Duquesne, Pa. Western University of Pennsylvania Medical Department, Pittsburgh, 1907 died in Sharon May 23 aged 76, of pulmonary embolus and arteriosclerotic heart disease

Renfrow, Thomas Franklin ⊕ Billings, Okla , Missouri Medical College, St. Louis 1896 died in Fort Roots Veterans Administration Hospital in North Little Rock July 8, aged 82, of cerebral thrombosis and arteriosclerosis

Riemer, Hugo Bruno Charles ⊕ Norwood, Mass , Harvard Medical School, Boston, 1904, specialist certified by the American Board of Ophthalmology, member of the American Ophthalmological Society and the New England Ophthalmological Society, at one time associated with the U S Public Health Service consultant at the Massachusetts Hospital School in Canton, Wrentham (Mass) State School, consultant in surgery at the Massachusetts Eye and Ear Infirmary in Boston, died July 10, aged 78, of cerebral hemorrhage

Salters, Leland Blackwood ⊕ Florence, S C., University of Maryland School of Medicine, Baltimore, 1903 affiliated with Bruce and Saunders hospitals, died May 28, aged 76, of myocarditis

Saltus, Lloyd Seaman ⊕ Brookside, N J Columbia University College of Physicians and Surgeons, New York, 1935, served during World War II, affiliated with Columbia-Presbyterian Medical Center in New York and the Morristown (N J) Memorial Hospital, died June 19, aged 45, of cancer of the brain

Simon, Peter Joseph ⊕ Cleveland, Eclectic Medical College, Cincinnati, 1938, died in the Deaconess Hospital, Cleveland, June 7, aged 43, of coronary sclerosis

Thomas, Calvin Merrill, Brewer, Maine, University of Pennsylvania Department of Medicine, Philadelphia, 1902 past president of the Penobscot County Medical Society· affiliated with the Eastern Maine General Hospital in Bangor, where he died May 22, aged 74, of carcinoma of the prostate with metastasis

Thompson, William Givens ⊕ Holden, Mo Missouri Medical College, St Louis, 1890, specialist certified by the American Board of Radiology; served during World War I for many years mayor of Holden died July 2, aged 72, of auricular fibrillation

Webb, Floyd ⊕ Blytheville, Ark., Memphis (Tenn) Hospital Medical College, 1913, served during World War I died in Chickasawba Hospital May 28, aged 65

Welfield, Samuel Estin ⊕ San Francisco, College of Physicians and Surgeons of San Francisco, 1918 member of the Industrial Medical Association died June 28 aged 65

DIED WHILE IN MILITARY SERVICE

Manning, Joseph Crockett Jr ⊕ Indianapolis born in St. Joseph Mo May 29 1916 University of Tennessee College of Medicine, Memphis, 1942 fellow of the American College of Surgeons interned at the Methodist Hospital, where he was on the associate staff served a residency at the Indiana University Medical Center· on the staff of the Indianapolis General Hospital joined the U S Air Force Reserve in March 1953 serving as a captain in charge of surgery at Tinker Air Force Base in Oklahoma City· died in Sheppard Air Force Base Hospital in Wichita Falls Texas April 3, aged 37, of bronchogenic carcinoma.

FOREIGN LETTERS

BELGIUM

Cancer of the Rectum.—At the Annual Meeting of the Belgian Surgical Association in May, 1954, in Brussels, Daumerie and Samain reported that primary or secondary cancer of the rectum is an epithelioma of which the exact location is of great importance because its malignancy is in inverse proportion to the age of the patient Patients with cancer of the rectum are usually seen by the surgeon much too late A fundamental principle upheld by Daumerie and Samain is that resection of the rectum must be wide and that sphincter preservation must be sacrificed to adequate resection Surgery that aims to be curative is a major operation and should only be used on patients who can tolerate the risks attendant on such intervention Resection is indicated when the tumor is inaccessible to rectal palpation or only its lower border can be felt It is useless to try to preserve the anal canal if the cancer is felt at 5 cm from the anus Amputation is preferable to resection because, in resection, there is a greater risk of recurrence Surgeons who favor resection at any cost must not forget that continence does not necessarily follow sphincter preservation Resection may be performed abdominally, abdominotransanally, or abdominosacrally The only choice to be made in amputation lies in the location of the artificial anus (iliac anus or perineal anus) Cure of the rectal cancer is worth the inconvenience of an iliac anus, which, though definitely a major deformity, is practicable and allows better control than the perineal anus The surgical treatment of cancer of the rectum is satisfactory in 60 to 80% of patients With the use of antibiotics and the discontinuation of anastomoses by combined routes, the operative mortality has reached a low level The improvement in long-term results stems from the abandonment of attempts to preserve the sphincter and from earlier diagnosis, resulting in intervention Further progress will probably result from improved methods of diagnosis rather than from such surgical innovations as pelvic evisceration

Consumption of Alcohol—The *Revue de l'alcoolisme* of January-March, 1954, showed that in 1948 each Belgian consumed an average of 4 77 liters of wine and each Frenchman 150 liters The annual consumption of beer at that time in Belgium was 133 liters per capita This represents a decrease from 1931 when the annual consumption was over 200 liters per capita, but this tendency to decrease is compensated for by the present increase in the alcoholic content According to these figures, the Belgians have the greatest per capita consumption of beer in the world, followed by the United States with 67 1 liters and the United Kingdom with 61 4 liters The consumption in France is only 20 1 liters In Belgium, the annual consumption of distilled liquors was 1 42 liters per capita in 1950 as compared with that of France (5 92 liters), Sweden (5 2 liters), and the United States (2 5 liters) On Jan 1, 1950, Belgium had 82,666 cafes, restaurants, and hotels Adding the 35,810 wine and spirit shops where drinking is not allowed on the premises, there is one place for every 63 inhabitants where it is possible to obtain liquor

Disappearance of Malaria—At the Fifth Session of Comparative Pathology in Strasbourg, Wanson stated that malaria disappeared in Belgium about 1870 despite the persistence of Anopheles maculipennis atroparvus, the principal vector in this disease The disappearance of malaria was due to the use of damming systems to separate salt and fresh water (organization of the Wateringes), agricultural progress in the suppression of polders and the consequent reduction in anopheline vectors, an increase in the livestock preferred by anopheline mosquitos, and the continued use of quinine in the treatment of intermittent fevers

Bovine Tuberculosis in Human Beings—The Belgian Society for Scientific Studies on Tuberculosis invited several French and Swiss authorities to discuss the importance of the bovine tubercle bacillus in human lesions Clinicians tend to believe too readily in the presence of bovine tubercle bacilli in the lesions they treat In France, definite evidence of bovine tubercle bacilli was found in only 2 to 5% of tuberculous patients Many cervical and mediastinal lymph node infections are caused by human tubercle bacilli Since 1939 human infections with bovine tubercle bacilli have been greatly reduced by the removal of contaminated livestock Human tuberculosis caused by the bovine bacillus can be confirmed only by isolation of the causative organism and its identification by its antigenic properties The disease is seen oftenest in children under 5 years of age. The incidence of this type of tuberculosis is relatively high in England, Scotland, and Switzerland, less in Canada, insignificant in France, and nil in the United States In all countries, infection by the bovine bacillus is commoner in rural than in urban areas The prevention of human tuberculosis from bovine bacilli consists of prohibiting the consumption of unpasteurized milk and combatting bovine tuberculosis

Physicians' National Service—The Belgian Medical Federation has organized a physicians' national service that will assure medical care to all inhabitants of the kingdom whose incomes are lower than a certain amount The medical fees will be determined for each region All physicians are asked to participate in this service The service will publish a list of the physicians who will participate to an extent that is either fixed or increases by a certain percentage, together with the hours and other conditions under which this care will be given All laboring persons will thus be able to consult the physician of their choice at fixed fees and be assured of a completely free choice This service was set up under the presidency of Dr Craps of Brussels and the patronage of Professors Bordet, Van Genuchten, Dermon, and Le Platt

Fluoridation of Drinking Water—Hianne reported to the Belgian Hygiene and Social Medicine Association that, because the ingestion of small amounts of fluorine in childhood constitutes prophylaxis against tooth decay, the water supply of Namur, all of which comes from the same well, will be treated with sodium fluoride The school children of this community will undergo regular radiographic examinations of their deciduous teeth and their six year molars The roentgenograms will be compared with those taken in the schools of a neighboring community whose water does not contain fluorine

BRAZIL

Antimalaria Campaign—The results of the epidemiological survey carried out in 1947, shortly after the organization of the malaria division of the National Department of Health, and continued during 1948, showed that malaria was present in 67 2% of the 1,780 counties in Brazil, in most of them endemically and in the rest under the form of periodic epidemic outbreaks of varying severity The endemic and epidemic manifestations of the disease spread over coastal districts along the 3,800 miles of the Atlantic seaboard and the valleys of the great and small rivers Rio Grande do Sul (a southern state having the coolest climate), the semiarid inland districts of the northeastern states, most of the Paraiba river valley in the state of Rio de Janeiro, and small isolated areas in several parts of the country were free from malaria According to conservative estimates, a minimum of 6 million persons were affected by malaria every year (12,180 per 100,000 population in 1947), with about 65,000 deaths directly attributable to the disease (132 per 100,000) Before the founding of the malaria division, the antimalarial activities of the federal government were almost limited to the cooperation with state authorities in stamping out the most important outbreaks of the disease Even before the end of the epidemiological survey, effective measures were begun against adult mosquitoes, consisting of house spraying with chloro-

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The items in these letters are contributed by regular correspondents in the various foreign countries

phenothane (DDT) in the São Francisco river valley (states of Bahia, Sergipe, and Alagoas) and in the entire state of Rio de Janeiro, which surrounds the Federal District. The results of this experiment led to a rapid expansion of the program, which reached its highest point in 1950, when more than 2.6 million dwellings were sprayed in 836 counties covering an area of about 2,650,000 square miles (78% of the whole country) with a population of 25,311,000 (more than 48% of the population in that year). This house spraying was continued in 1951, 1952, and 1953.

A full report has been published by the Malaria Division. In the areas regularly sprayed with chlorophenothane, the transmission of malaria may fall to levels so low that the mere determination of hemoscopic indexes in samples will not give a true picture of the situation. It is important to maintain a routine search for suspected cases of the disease and to confirm the diagnosis through blood examination. In the large areas protected by chlorophenothane the incidence of malaria showed a reduction of about 95%. Better results were obtained, whatever the species of the vector, when two cycles of spraying were carried out in the year, as was done in seaboard districts, where the reduction reached 98 or 99%. In these districts where the transmission is mainly due to Anopheles tarsimaculatus, Anopheles darlingi, and Anopheles albitarsis, the houses alone were sprayed. In some inland districts, however, where cases of malaria still occurred, such factors as (1) extradomiciliary transmission by A. darlingi, even with two cycles of chlorophenothane house spraying in the year, (2) transmission by A. darlingi in areas where the houses have very irregular walls or no walls at all, hampering the protection from chlorophenothane, and (3) extradomiciliary and peridomiciliary transmission by Anopheles cruzi and Anopheles bellator in southern coastal districts could not yet be entirely eliminated. Cases of malaria occurred in houses internally sprayed with chlorophenothane where infected specimens of A. darlingi and A. bellator were captured on the external surfaces of the walls and on trees and bushes. As a contribution to the control of residual malaria in such difficult situations, Dr. Mario Pinotti, director of the Malaria Division, suggested the use of chloroquine mixed with table salt. The method was used in several districts in 1953 with encouraging results, the parasitoscopic index falling to 0.3, 0.1, and even 0%, in contrast with values of 6 to 25% in the same districts before the generalized use of chloroquine and salt or in similar areas at the same time where the method was not in use.

Vital Statistics for Rio de Janeiro.—Rio de Janeiro is a fast growing city. In 1940 it had 1,764,141 inhabitants, and in 1950 it had 2,413,152. The midyear population for 1954 has been computed to be nearly 2,700,000. The data for 1953, published in the bulletin of the Federal Bureau of Vital Statistics, show that the annual death rate from all causes declined from an average of 15.5 per thousand population for the five year period 1944 to 1948 to 11.7 in 1953. On the other hand, the annual birth rate increased from an average of 20.8 per thousand to 26.1 for the same periods. Computing a ratio between the total number of live births and the number of deaths from all causes, we get a vital index whose value increased from 1.33 for the period 1944 to 1948 to 2.23 for 1953. The infant mortality rate for 1944 to 1948 was 128 deaths per thousand live births and for 1953, 109. The maternal mortality, which was 5.5 puerperal deaths per thousand live births for the period 1944 to 1948 was 3.5 in 1953. The greater part of this reduction was due to the decline in puerperal infection that resulted from the increasing use of antibiotics. Deaths from tuberculosis of all forms declined from 295 per 100,000 population in the period 1944 to 1948 to 94 in 1953. Deaths from typhoid fever fell from 7.9 per 100,000 to 1.5 in the same periods. The corresponding figures for the several forms of dysentery were 8 deaths per 100,000 and 5.5. Deaths from whooping cough dropped from 7.4 per 100,000 to 2.6, from measles increased from 2.8 to 5.2, and from diphtheria decreased from 4.3 to 3.4. Deaths from poliomyelitis, which formerly had been relatively rare with annual rates of about 0.2 per 100,000, increased to 1.4 in 1953, deaths from heart diseases increased from 158 per 100,000 to 216, cancer, from 18.2 per 100,000 to 23.6, and motor vehicle accidents, from 68.1 per 100,000 to 83.1. Deaths from diabetes remained almost unchanged, fluctuating between 6.8 and 8.9 per 100,000. The death rate from appendicitis showed a remarkable reduction, from an average of 5 deaths per 100,000 in the period 1944 to 1948 to 1.9 in 1953.

ENGLAND

Another Report on General Practice.—In December, 1950, the Central Health Services Council appointed a committee "to report on whether the existing arrangements for engaging in general practice under the National Health Service are such as to enable general medical practitioners to provide the best possible standard of service." The committee, made up predominantly of medical men and including consultants and general practitioners, has now presented its report. This starts with the categorical statement that "general practice is fundamental to the best practice of medicine and to the best interests of patients. It cannot be replaced by a congeries of specialisms." On July 1, 1952, the latest date for which full figures are available, 20,162 physicians were engaged in general practice in the National Health Service in England and Wales. These included 17,204 persons providing 'unrestricted' general medical service, 56% of whom were members of partnerships, the rest working alone. Provisional figures for 1953 suggest that the proportion in partnership has risen to over 60%, and this increasing cooperation between physicians is one of the most encouraging developments in the National Health Service.

In the committee's view the range of work of a general practitioner should normally include "(*a*) Continuing responsibility of the health of his patients. (*b*) The diagnosis, treatment and management of such illnesses as can properly be treated in the patient's home. (*c*) When the patient's condition requires it, reference to hospitals or specialists for diagnosis or treatment or both and at the same time the forwarding of the relevant details of such patients. (*d*) Emergency treatment. This includes the emergency treatment of any patient and is not confined to those on the doctor's list. (*e*) Supervision of the convalescent period and return to work. (*f*) The practice for his patients of preventive medicine and of health education. (*g*) The giving of certificates and other administrative and legal requirements, for example, notification of disease when statutorily required. *It would always assume* (*h*) Proper and sufficient arrangements for examining patients. (*i*) Clean, pleasant and adequately equipped accommodation. (*j*) Association with hospitals and local authorities."

Referring to the frequent assertions that since the introduction of the National Health Service there has been an increase in the number of items of service rendered by general practitioners to their patients, the committee suggests that "though this may be so, the increase has not been very great and has not been evenly distributed." Figures supplied by the registrar general indicate a steady increase in the proportion of consultations taking place in the physician's office as compared with those in the patient's home and in the number of women and children treated. The committee believes that "the arrangement whereby a family has over a period of years, its own doctor' is an ideal one both for the doctor and the family, ensuring as it does continuity of treatment for the latter and affording the doctor valuable knowledge of the general background of the patient." At present about two-thirds of a physician's patients "may regard him as the family doctor, at least to the extent that father, mother and children in that family are all on the doctor's list." The committee "does not think that in general the advent of the National Health Service has disturbed the relationship between doctors and their patients the relationship is good in some respects indeed it was found to be better than before, and this was attributed to the absence of the money bar and to increased cooperation between doctors."

In discussing the organization of general practice, the committee emphasizes the need for ancillary help in the practice and for an appointment system. "A doctor should not himself undertake what can be properly delegated to a nonmedical assistant. The provision of such help is easier to achieve in partnership and within groups of doctors because its cost can be shared. This is indeed an important advantage of group practice." Although the committee is enthusiastic about the advantages of partnerships and group practice, it "does not share the view   that single-handed practitioners must as soon as possible be forced to link themselves up in formal groups " Of group practice, it says that normally the group should consist of three to six persons

Among the difficulties encountered in establishing health centers under the National Health Service is the fact that the local authority is in control by virtue of being responsible, under the terms of the relevant act, for supplying them "This at once causes misgivings in the minds of many general practitioners " Furthermore, once a practitioner has given up his private office for a suite in a health center, "he will have lost much of his independence because his patients may become attached to the centre and would not then, in the main, follow him back to other premises if he decided to break his connection with the centre " Conversely, many patients who have become used to visiting a physician at his own office might not be prepared to follow him to a health center and might transfer to a neighboring practitioner The committee comments "It could be argued that all these difficulties should be forcefully swept aside, but unfortunately they have their foundations in the hard facts of history and of intelligent self-interest In practice, the doctor, as an independent contractor under the arrangements for general medical services, is having to gamble on the success of his step if he agrees to transfer his practice to a health centre It is a speculative move in which he naturally requires assurances on charges, control, powers of dismissal and so on   Many of the advantages both to doctors and to patients, which have in the past been urged in favour of health centres, may it is hoped be more easily secured through the evolution of group practices, consisting of doctors who have chosen to work together in communal premises which they own themselves "

In some practices, particularly in industrial areas, office accommodations are not all they should be This is due in part to e postwar difficulties in any building program, no matter how all Private building work and alternative accommodations now available, and, therefore, it is not now unreasonable to urge improvements in office accommodations The gross remuneration of general practitioners is at present calculated to include 38 7% for practice expenses, a large part of which is spent for office accommodations and equipment "Only insistence of adequate standards can provide a proper safeguard against the otherwise paradoxical situation that the less a doctor spends on his practice expenses—which in many cases may mean the poorer his accommodations—the greater proportionately are his personal rewards from practice " Executive councils have the power to inspect office accommodations, and these councils are urged to make the necessary arrangements to ensure that the accommodations provided by physicians include (1) running water (or at least a wash basin with water), soap, and a towel in the consulting room, (2) a separate examining room or screened-off examining table, (3) a waiting room large enough to seat in reasonable comfort all who may need to wait, except in special circumstances such as a severe epidemic, (4) a bright and pleasant, well-lit, well-warmed, well-cleaned, and well-ventilated atmosphere, (5) furniture of reasonably good quality and domestic rather than institutional, and (6) access for patients to a toilet and wash basin

The committee considers that a period of assistantship is normally the best introduction to general practice The number of assistants employed by general practitioners in the National Health Service is around 2,000 It is admitted that there has been some abuse of the arrangements whereby physicians employ assistants and take on partners, and recommendations are made for removing these One, for instance, is that in a partnership of two the agreement should normally provide for at least a third share for the new partner at the end of two or three years The committee considered evidence in favor of methods of remuneration other than by capitation fees, namely, by salary, by sessional fees, or by fees for items of service, but came to the conclusion that "the present method by capitation fees is the most satisfactory   Since it does not preclude the practitioner from doing other work outside general medical service under the National Health Service, it has also the advantage that it means that no special limit is set to the general practitioner's remuneration "

On the subject of the maternity medical service, the report states that "quite apart from the question of economy and expedience, the Committee thinks it is desirable that more normal confinements (except many primiparae and women who have had four or more children, amongst whom unforeseen abnormalities more commonly occur) should, if the housing and other relevant social conditions are satisfactory, take place in the patient's home " Of the confinements that take place in a hospital, it is considered that many could be dealt with by general practitioners if hospital boards would set aside hospital accommodation for this purpose The committee could find no evidence that the provision of maternity medical services by general practitioners had decreased since the inception of the National Health Service

The committee categorically rejected the repeated demand that a person, although electing to obtain medical treatment as a private patient, should nevertheless be allowed to obtain drugs under the National Health Service "The Committee decided that it is right to regard prescribing as an integral part of general medical services and therefore does not recommend that doctors be allowed to use National Health Service prescription forms for their private patients " On the subject of private practice in general, the view is expressed that "the opportunity for private practice for doctors in the Service remains as part of the freedom both of the doctor and of the patient This is, in the Committee's view, right " Most patients, however, have elected to come into the service, and physicians have accepted the full responsibility of ensuring that patients in the service are offered the highest standards of medical practice

A strong plea is made for the wider acceptance of the suggestion that "general practitioners should have at their disposal hospital beds where they can retain responsibility for their patients, many of whom are now admitted to hospital, not primarily for medical reasons, but because home circumstances do not permit proper general, including nursing, attention Consultant advice would be available when necessary " A plea is also made for the wider adoption of the system of clinical assistantships for general practitioners provided "the hospital should not regard the general practitioner who is a clinical assistant simply as a useful additional pair of hands " The committee also takes the view that radiological and pathological facilities should be directly available to practitioners It reports that in 1952 nearly half the hospitals with radiological facilities made these available to general practitioners directly and carried out 741,000 examinations for them, an increase of 11% over 1951 Fifty-five per cent of pathology laboratories gave similar facilities—554,000 examinations in 1952, an increase of 21% compared with 1951

Finally, on the subject of undergraduate education, the committee consider that "a student should be given as much opportunity to study the scope of general practice as he is to learn the scope, for example of surgery or preventive medicine " It is also recommended that selection committees for the admission of students to medical schools should include in their membership a physician engaged in, or with personal experience of, general practice

Smoking and Cancer of the Lung —There are several references to smoking and lung cancer in the annual report of the British Empire Cancer Campaign covering the year 1953 In introducing the report at the annual meeting, Prof F Dickens stated that the importance of cigarette smoking causing cancer of the lung is not yet known and that the situation is complicated by the fact that primary cancer of the lung occurs among nonsmokers as well as smokers A further complication lies in the statistical association now found between the incidence of lung cancer and the density of population or its "degree of urbanization " Since campaign research workers have found that town air contains appreciable amounts of known chemical carcinogens, as well as other irritant substances, it is a reasonable hypothesis that the prolonged inhalation of such air, either alone or com bined with tobacco smoking, may be conducive to pulmonary cancer

At the London Hospital, R H Gwynn and M N Salaman have failed to produce tumors in mice from the weekly or twice weekly application to their backs over a period of 23 weeks of (1) a methanol extract of whole, unburnt cigarettes ("Virginian" brand), (2) the same extract preceded by initial treatment with 9 10-dimethyl-1 2-benzanthracene, or (3) 0 1% purified nicotine in acetone

At the University of Leeds a machine has been produced capable of smoking 36 cigarettes simultaneously at about the same rate and the same temperature as in man Two extracts of cigarette smoke have been produced (1) the condensate from the whole smoke dissolved in acetone and (2) the condensate dissolved in benzene, washed with acid (to remove base), alkali (to remove phenols), and water, and the solvent removed under pressure This produced 18 gm of a semisolid gum from 10,000 cigarettes These extracts were tested in mice and rats for seven months, but no tumors appeared Also at the University of Leeds, work has been carried out on the radioactivity of tobacco ash and smoke The mean radioactivities per cigarette were equivalent to 25 mg, 28 mg, and 6 mcg of potassium for the tobacco, ash, and smoke, respectively The difference between the radioactivities of the tobacco and the ash are not significant The report concludes that such radioactivity as is present in cigarette tobacco remains in the ash and that little, if any, is transferred to the smoke Taking 6 mcg as representing the maximum radioactivity (as potassium) that could be transferred to the lung by one cigarette and assuming that in the worst case this could lodge as a single particle, the dosage to cells adjacent to it can be shown to be of the order of 2 to 3 mr per week This is about equal to the dosage that body cells receive continually from their average potassium content, local rays, and cosmic rays and is at least 10,000 times less than the dosage involved in cases where tumors have been known to be due to deposition of radioactive materials in the body

In the cancer research department of the Royal Beatson Memorial Hospital, Glasgow, the treatment of CBA mice with commercial nicotine by skin application or orally did not result in an increased incidence of pulmonary tumors, though many animals survived more than two years of treatment Application of a crude preparation of oxidized nicotine to the skin of 14 mice of a mixed stock gave adenomas of the lung in 7 animals A comparison of chromatographic fractions of cigarette tobacco and of the acid extract of tobacco smoke showed that the stained chromatogram of the more volatile and soluble fractions of tobacco showed spots provisionally identified as nicotine and other related alkaloids, while similar fractions of the acid extract of tobacco smoke, apart from nicotine, contained less stainable material The less soluble fraction of the tobacco smoke extract, on the other hand, contained almost as much stainable material as the corresponding tobacco extracts, although the rate of flow when developed on the chomatogram varied The rate of flow of these spots and the color after staining with *p* aminobenzoic acid appear to indicate the presence of oxidation products of nicotine and related alkaloids in these tobacco smoke fractions Tobacco smoke tar and tobacco resin were also examined by paper partition chromatography, and the presence of nicotine was identified in both fractions

Hospital and Community —A detailed report of an investigation into various aspects of hospital care by Prof T Ferguson and Dr A N MacPhail of the department of public health of the University of Glasgow has been published under the aegis of the Nuffield Provincial Hospitals Trust Two separate but closely integrated studies are included in the report One was of two 'mixed" Scottish counties with a combined population of about 500,000 and having within the county boundaries some 5 7 hospital beds per 1,000 population (apart from beds for the treatment of mental illness) as well as easy access to city hospital sources It was found that in these counties one person in every seven received hospital treatment—inpatient, outpatient or both—in the course of a year Hospital morbidity was closely correlated with social and environmental conditions Thus, respiratory disease, injuries, and disease of the skin and cellular tissues contributed more heavily to hospital load in the registrar general s social class 5 (unskilled laborers) than in the others Conversely duration of stay in a hospital in most disease groups was appreciably shorter among patients from social classes 1 and 2 (the executive and professional classes) than among patients from class 5

The second study was of 705 men discharged after treatment in medical units in one of four hospitals for acute conditions in the west of Scotland The clinicians in charge of these patients estimated that in just over 10% some preventable factor had made a major contribution to the breakdown responsible for admission to hospital A follow-up showed that two years after discharge from the hospital, 171 had died and 60 could not be traced, the remaining 474 were seen in their homes Of the 171 who had died, 119 were under the age of 65, and 70 were under the age of 55 Of the 474 interviewed, 111 were regarded as cured, 193 had continued to maintain the improvement achieved in the hospital, 106 had not improved and their medical condition was still unsatisfactory, and 64 were worse In other words, *two-thirds of those still alive two years after* leaving the hospital had derived "substantial and lasting benefit" from hospital care Over a period of seven years—five years before this study was instituted and two years after discharge from the hospital—118 of these 474 men had been admitted to the hospital on three or more occasions Readmission was more frequent if home conditions were not good, and a relatively high proportion of the men who were not at work two years after leaving the hospital came from poor homes Just under 20% of those who were at work at the end of two years were in unsuitable jobs Since leaving the hospital, 106 of the 474 men had never worked

The authors sum up as follows "It is doubtful whether results substantially better than those presented in this report can be obtained with things as they are Nor would mere multiplication *of costly hospital beds within any reasonably practicable limits* of itself effect great improvement, without more help in the transition from hospital to everyday life, without decent living conditions and reasonably suitable work to which the patients can return on leaving hospital, even the most careful and enlightened treatment is not likely to achieve a full measure of lasting benefit It is important to preserve all that is best in our hospital tradition, but equally it is important to try to view hospital care in a true perspective"

Antimalarial Drugs —The malaria subcommittee of the Colonial Medical Research Committee has published revised recommendations for the use of antimalarial drugs (*Lancet* 2 1340, 1954) For causal prophylaxis they recommend chloroguanide (Proguanil) or pyrimethamine The order of preference for suppressive drugs is chloroguanide, pyrimethamine, chloroquine, Amodiaquine, quinacrine (Atabrine), and quinine A warning is given of the possibility of resistance to chloroguanide and pyrimethamine, especially if they are used indiscriminately as therapeutic agents Cross resistance has been shown to exist between chloroguanide and pyrimethamine, so that if resistance to either becomes apparent a change of medicament to chloroquine, Amodiaquine, or quinacrine is indicated For the treatment of an overt attack in nonimmune subjects, chloroquine or Amodiaquine is recommended "Neither Proguanil nor pyrimethamine is sufficiently rapid in action to warrant their use in the treatment of malaria in nonimmune subjects." For the treatment of the overt attack in partially immune subjects such as the indigenous inhabitants of malarious districts, a single-dose treatment with chloroquine chloroguanide Amodiaquine, or quinacrine has proved effective For emergency treatment, as in pernicious forms of malaria, quinine dihydrochloride intra venously quinacrine methane sulphonate intramuscularly or chloroquine intravenously or intramuscularly is indicated, oral administration should be substituted as soon as possible For radical cure of vivax or malariae malaria, pamaquine naphthoate or primaquine should be used During an overt attack a course of treatment with a schizontocidal drug must also be given Careful supervision is necessary over patients taking any of the 8-aminoquinoline drugs, such as pamaquine or primaquine because of the occasional unpredictable occurrence of acute intravascular hemolysis with or without hemoglobinuria. The 8 aminoquinolines are the only drugs that are able to destroy the sexual forms of Plasmodium falciparum in the peripheral blood Chloroguanide and pyrimethamine have no demonstrable action on the gametocytes in the blood but both have the *property of preventing them from undergoing full development* in the mosquito so that mosquitoes feeding on patients taking either of these drugs are unable to transmit the disease to others

Homologous Serum Jaundice—Several years ago a survey was instituted by the medical research council of the Ministry of Health and the department of health for Scotland with the object of comparing the incidence of homologous serum jaundice after administration of dried, irradiated plasma with that after administration of (1) dried, unirradiated, small-pool plasma, prepared concurrently by the usual methods in use since 1945, and (2) whole blood alone The results are shown in the following table, taken from a preliminary report just published (*Lancet* **2** 1328, 1954)

	No of Patients			
Transfusion Fluid	Treated with Transfusion	Jaundice of Doubtful Cause	Homologous Serum Jaundice Attributed to Transfusion	Deaths Attributed to Homologous Serum Jaundice
Blood	2 538	4	4 (0 16%)	0
Dried small pool plasma with or without blood	807	0	1 (0.12%)	0
Dried irradiated large pool plasma with or without blood	984	5	39 (3 96%)	1

A comparison of the results with kaolin-treated filtered liquid plasma and with whole blood showed that of 1,387 patients given whole blood, jaundice of doubtful cause developed in 3 and homologous serum jaundice attributed to the transfusion developed in 5 (0 36%), the comparable figures for the treated plasma were 1,366 patients, 8 of whom had jaundice of doubtful cause and 16 (1 17%), jaundice attributed to the transfusion There were no deaths attributable to homologous serum jaundice in either series It was concluded that the exposure of plasma to ultraviolet light under the conditions used did not inactivate the causative agent of homologous serum jaundice

ITALY

Uncommon Findings in Hereditary Ataxia —At the meeting of the Pistoia Medical Academy in December, 1953, Prof Mattioli Foggia discussed three patients of the same family who had hereditary ataxia Two other close relatives of the patients had died young with the same condition This began gradually in all the patients with a staggering gait, a decrease of energy, physical decay, and a speech defect The patients were a mother, her son, and her daughter The condition had appeared in them at the ages of 60, 30, and 19 years, respectively Some remissions had occurred in all three, nystagmus and lesions of the pyramidal pathways were absent, the sphincters were not involved, and all had a staggering gait without Romberg's sign An intention tremor was present in the mother and the son but not in the daughter, and the mother had a congenital talipes equinus-like malformation of the foot and marked amyotrophy of the hands Roentgenograms of all three patients showed no hypoplasia of the posterior cerebral fossa Optic atrophy and syphilis or other intoxications were also absent The differentiation from familial multiple sclerosis and the atypical forms of hereditary ataxia (Marie-Friedreich) and problems of neuropathology related to the genetic mechanism of these forms of hereditary ataxia were considered

One of the problems was to establish whether in these patients the ataxia was associated with myotonia congenita or whether it was a polymorphic, pathological muscular manifestation that appeared with a myotonia congenita-like disease in the daughter and with a myasthenia-like disease and pronounced amyotrophy in the thenar and hypothenar eminences in the mother The speaker could not find a report of any patient in whom myotonia congenita or myasthenia was associated with hereditary ataxia Another problem was to determine whether in these patients the condition was primary or secondary With a cathodal oscillograph an electromyographic test of the flexor and extensor muscles in the areas of myotonic disturbances seen in the daughter was made The findings indicated a lesion in the flexor muscles, manifested by groups of potentials that were higher and less frequent than normal In the periods of rest there were small action potentials due partly to reflex phenomena and partly to local muscular activity In general, the myogram was that of a tetanus due to motor units acting in a nonsynchronized manner with some episodes of fasciculation

In the extensor muscles, the activity of the single units was even more subdivided into partial episodes, and single potentials with elevated voltage were observed The slowness of the activity of the extensor muscles during the distension of the fingers with thrusts of long-lasting action potentials was characteristic In some instances discharges were observed after relaxation, as felt by the patient Considering the fact that primary impulses capable of regulating the normal behavior of the innervation of the antagonistic muscle groups derive mostly from spindles and tendinous receptors, it may be that, in the presence of a lesion of the receptors in a muscle, the syndrome assumes the characteristics of cerebellar deficiencies, but the deficit represented by ataxia should in reality be considered secondary rather than primary These three patients had a peripheral myopathy that exerted a secondary action on the spinocerebellar system and on that of the tonic mesencephalic nuclei

Acute Erythropathy —At a later meeting of the academy in February, Professor Di Guglielmo described a case of acute erythropathy due to chronic benzolism that presented alterations of the medullar erythropoietic system, some of which had never before been described The patient was a printer in whom the condition had appeared suddenly, there was fever and progressive anemia, which led to death within one month The diagnosis was based on the qualitative and quantitative alterations of the hemopoietic system Sternal puncture revealed many cellular elements, mostly of the erythrocytic series, and this indicated a process of hyperactive erythropoiesis Some of the erythroblasts were three or four times the normal size Polyploid cells with two to eight nuclei and cells with the so-called secondary nuclei, nuclei divided into various lobes connected by bridges, or gigantic nuclei were seen

These alterations were present not only in the more immature elements, as is usually the case, but also in the cells in which the hemoglobin was beginning to penetrate into the cytoplasm These alterations suggested a blastomatous process, some authors speak of erythroblastoma when such lesions are present Similar findings may be found in conditions that have nothing to do with tumors (such as pernicious anemia and hyperplastic processes of the myeloid tissue) They may also be found as an atypical hereditary trait in normal persons These alterations are reversible in some patients In this patient the findings described had disappeared almost entirely after 19 days One day before his death the number of leukocytes increased from 6,000 to 280,000 per cubic millimeter The starting point of these acute hemopathies is medullar aplasia This is followed by the mobilization of extramedullary hemopoietic centers with the production of blood cells the maturation of which may be blocked Centers of compensatory hyperplasia may be found in the bone marrow

Intramedullary Fixation —At a meeting of the Salento medical and surgical society in January in Brindisi, Professor Montemartini reviewed the various means of treating ununited fractures and said that crossed temporary intramedullar fixation is less dangerous than other techniques He uses thin, inoxidizable metal wires, thus preventing those lesions of the marrow that are produced by thick nails He concluded that the open treatment with temporary intramedullary fixation should not be used routinely in the treatment of ununited fractures and pseudoarthrosis but only as a supplementary technique He advised continued observation so that the forces that might lead to a changed position of the fragments could be promptly neutralized With this treatment, disturbances in callus formation and consolidation are reduced to minimum, damage to the medullary cavity is avoided, and fixation is controlled with roentgenograms

Current Status of the Thymus —At a meeting of the Tortona medical and surgical society in February, Professor Copello stated that little is known about lesions of the thymus From the anatomic standpoint the thymus is a gland of internal secretion, since it is a lymphoepithelial formation with a connective tissue capsule, has a cortical substance with many leukocytes and a medullary substance with Hassal's corpuscles, but lacks an excretory duct. From the functional standpoint, however, there is not as yet sufficient evidence to justify considering the thymus a gland of internal secretion The physiological involution of the thymus immediately after the period of youth proves only that, if it does have an endocrine action, this is linked to the growth period Experimental studies have shown that the growth of tadpoles favorably influenced by the presence of thymus extracts is due to the presence in such extracts of fats with a low molecular weight as well as to the concurrent presence of nutritious animal and vegetable substances On the other hand, the absence of the gland or the abolition of its function in young persons has had no definite adverse effects on physical and mental development

The genital organs and the adrenals exert a direct action on the volume of the thymus (if these do not function, the thymus becomes enlarged), but the thymus does not exert any direct action on the genital organs or the adrenals Hyperfunction of the thyroid and the anterior lobe of the hypophysis causes hypertrophy of the thymus, and their hypofunction causes atrophy of the thymus, but the thymus cannot modify the function of these endocrine glands In view of these facts and the fact that the thymus is not indispensable to life, it seems questionable to ascribe to it a precise function Moreover, the anatomic modifications of the thymus associated with myasthenia gravis do not clarify the problem since the cause of these alterations is obscure They may be caused by the ionic balance, primary muscular alterations, or endocrine alterations in several glands

It is certain only that the thymus has a lymphocytic function As regards treatment it is still debatable whether an enlarged thymus should be irradiated This treatment may relieve some patients who present evidences of lymphatic diathesis

Biliary Pathways—At a meeting of the Filippo Pacini" medical academy of Pistoia in February, Professor Torsoli and his associates discussed the modern cholangiocholecystographic tests used to study the biliary pathways The new synthetic preparations for cholecystography have led to a marked decrease in the number of noninformative cholecystopathic findings Those that can be given intravenously have made it possible to carry out cholangiographic studies in a patient whose gallbladder has been removed or is functionally excluded Iodopanoic acid (Telepaque) is a tri iodine and is given by mouth When Biligrafin, which has a higher iodine content and is given intravenously, is used during the painful attacks, not only the calculi but also the dyskinetic movements that cause the pain can be seen Often the calculi and the painful spasm were found not to be in a close topographical relationship

The speakers stated that most syndromes involving biliary dysfunction may be studied radiologically not only because it is possible to visualize the excretory ducts but also because it is possible to inject the gallbladder in patients in whom previous cholecystographic findings have always been noninformative Only with the new intravenous test is it possible to distinguish cholecystic from hepatic function The investigation of the latter by means of the elimination of the contrast medium has given results that agree with those deduced from such tests as the Quick test and the Bufano test The new contrast mediums may cause cloudy swelling and fatty degeneration of the liver and kidneys, but only when given in twice the regular dose The damage, however, is reversible in the early stages and should not, therefore, contraindicate the use of these drugs

Studies on the Liver Function.—At a meeting of the Pavia medical and surgical society in February, Professor Didone discussed the results of some studies on the function of the liver in patients with abdominal diseases requiring operation In 75 such patients a cephalin-cholesterol flocculation test, thymol turbidity test, determination of total cholesterol, and other tests were done to evaluate the frequency and the nature of the liver dysfunctions before operation In 10 patients with common duct stones the chief alterations were attributable to obstruction, and signs of hepatocellular damage were few These were evident, however, in varying degree and intensity in five patients with neoplastic biliary obstruction This is ascribed to the fact that in some patients the cancer does not lead to complete obstruction of the extrahepatic biliary pathways Patients with lesions of the gastrointestinal tract presented a high rate of hepatic dysfunction, 12 patients with gastroduodenal ulcer had signs of slight hepatocellular alteration This was even severer in 12 patients with neoplasm of the stomach, 9 with neoplasm of the rectum, and 3 with neoplasm of the colon Metastases to the liver secondary to gastrointestinal neoplasm in 10 other patients did not cause true alterations of the hepatic function Professor Didone emphasized the importance of the functional investigation of the liver in patients with abdominal diseases requiring operation as well as in patients with diseases of the biliary pathways

Renal Biopsy.—At a meeting of the Rome Medical Academy in February, Professor Malizia and his associates reported on the indications and usefulness of renal biopsy in the diagnosis of intercapillary nodular nephrosclerosis The technique used by them consists in the visualization of the kidney by means of retropneumoperitoneum and the removal of a specimen with Sylverman s needle under visual control In one patient they made a diagnosis of diabetic nephrosis despite the fact that the clinical findings and course were not typical of this condition Renal biopsy is used not only in the diagnosis of diabetic nephrosis but also to study the course of the disease and to guide its treatment. It should be used, however, only on patients whose condition cannot be diagnosed clinically

Jaundice in Patient Taking Phenylbutazone.—At the same meeting Professor Lucherini and his co-workers reported on a case of jaundice that developed during a course of phenylbutazone therapy This is the 10th such case reported in the world literature The patient, who had a severe form of chronic rheumatism was receiving phenylbutazone in regular doses Shortly after the treatment was started, gastric disturbances appeared and were followed by jaundice subfebrile temperature, and pains in the right hypochondrium Because this was believed to be a toxic jaundice caused by the phenylbutazone, the administration of the drug was stopped, but when the jaundice continued for a length of time longer than is usual in jaundice caused by drugs a liver specimen was obtained for biopsy This revealed histological alterations characteristic of viral hepatitis When the signs of liver impairment had disappeared, the administration of phenylbutazone was resumed. This resulted in a marked improvement in the joints and no return of the jaundice From this evidence it does not seem likely that the jaundice was caused by the drug

Pseudohemicranial Headaches.—At a meeting of the medical society of Leghorn, Professor Greppi of Florence distinguished the true essential hemicrania of youth from the analogous syndromes that are caused by vascular lesions and dysfunctions The latter are commoner in presenile and senile patients The so-called pseudohemicranial headaches belong in a third group These appear in the presence of inflammatory or productive processes in the endocranial and extracranial arteries An arteritis or thromboangiitis localized in the superficial temporal artery and in other branches of the external carotid may be seen in old patients in whom atheromatous degeneration or arteriosclerosis with or without hypertension is present Analogous findings may be caused by arteriosclerosis in elderly persons in whom the clinical characteristics of histamine cephalalgia appear even without the inflammatory or thromboangiitic aspect of the process.

Exfoliative Cytology in Gynecologic Conditions.—Professor Laudadio reported on exfoliative cytology at a meeting of the Tortona medical and surgical society He said that the histiocytes found in smears from the female genital tract may easily be mistaken for neoplastic cells Despite false positive and false negative reports, the method is of great value, especially if it is used as a supplement to other methods such as biopsy The cytological examination has its greatest value in the detection of cancer in the 0 phase (called intraepithelial or preinvasive) and in the 1 phase which in its subgroup *a* includes the subclinical or asymptomatic cases At the meeting of the Foggia medical and surgical society in February Professor Mele said that exfoliative cytology as a means of early diagnosis of malignant tumors of the female genital tract has become the commonest diagnostic method because of its simple technique and its certain results

CORRESPONDENCE

RADIOLOGICAL TECHNICIAN

To the Editor —X-ray technicians on the west coast of the United States were recently circularized by an organization offering memberships that authorized placing "R T" after the name of the technician This was to signify "Radiological Technician" These memberships were to be granted merely on application and the payment of a fee There was nothing in the structure of the organization that would guarantee any particular competency in radiological technique on the part of the members The consummation of this scheme would have, of course, confused the issue completely in the field of radiological technique in that, as is explained below, "R T" has attained a well-defined meaning within the medical and hospital world Fortunately, due to an inadequate response, the organization that considered entering into the program abandoned its plan The American College of Radiology believes, however, that for the record and in support of the American Registry of X-Ray Technicians, which has since its inception operated under medical guidance, the dissemination of the following statement is desirable

> For the information and guidance of the medical profession in the United States X-ray technicians hospital personnel and other interested persons the American College of Radiology offers the following statement
>
> The American Registry of X Ray Technicians, the headquarters of which is in Minneapolis, and whose executive secretary is Mr Alfred B Greene, R T , is the sole organization offering certification or registration of X-ray technicians recognized by the American College of Radiology and the American Medical Association The American Registry of X-Ray Technicians offers an opportunity for examination after the technician has followed a course of training approved by the American Medical Association, the American College of Radiology and the American Society of X-Ray Technicians These examinations are conducted by members of the American College of Radiology or trustees of the American Registry of X-Ray Technicians Upon successful completion of examination the technician is registered and is authorized to place after his or her name the designation R T (Registered Technician)
>
> It is the considered opinion of the American College of Radiology that the designation R T has, in the eyes of the medical profession X ray technicians hospital personnel and the public, acquired a well-defined meaning signifying the successful undertaking of a given course of training, a specific level of achievement in X ray technique adherence to a well defined code of conduct, and passage of a supervised examination The College would lament and discourage the action of any organization or person offering registration of X ray technicians merely upon application rather than examination beclouding the meaning of "R T ," Registered Technician, by attributing to the initials some other meaning such as "radiological technician", and misleading those concerned with competence in X ray technique by sponsoring registration outside the purview of recognized medical and X-ray technician organizations

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BALLISTOCARDIOGRAPHY

To the Editor —In their article, "Use of Ballistocardiography in Evaluation of Paroxysmal Rapid Heart Action," in The Journal, July 3, 1954, page 897, Drs Selinger and Levin state in the discussion following case 1 "It is known that paroxysmal auricular tachycardia may be the first sign of coronary artery disease If attacks of paroxysmal auricular tachycardia develop in a man past 40, one must suspect coronary disease as the cause " I do not believe that this represents the opinion of most cardiologists The authors' opening paragraph expresses rather, I believe, the consensus, that is, that tachycardia "is fundamentally a functional disturbance, but one occurring *in* [italics mine] hearts that are structurally either normal or abnormal " Paroxysmal auricular tachycardia is found far more often in normal than in damaged hearts Even in the middle-aged the finding of paroxysmal auricular tachycardia tends to reassure me that I am more likely to find the heart organically sound One does not suspect coronary artery disease but looks rather for anxiety, tension, or fatigue as the probable cause Prinzmetal, whom the authors cite, says paroxysmal auricular tachycardia "is essentially functional in origin When it occurs in diseased hearts there is no constant association with any specific lesion" Although it may appear as the first sign of coronary artery disease, it is apparently coincidental (The Auricular Arrhythmias, Springfield, Ill , Charles C Thomas, Publisher, 1952, p 46)

At the Los Angeles County General Hospital in 1945 the arrhythmias found in 1,247 electrocardiographic records of patients with acute myocardial infarction were reviewed Paroxysmal auricular tachycardia was found only five times—surely no more than a chance relationship It is doubtful that the relationship is any different in coronary artery disease without infarction (See my article in *Am Heart J* 37 425 [March] 1949) On the evidence, therefore, paroxysmal auricular tachycardia appearing in a middle-aged patient should not lead one to suspect coronary artery disease as the cause If they coexist, it is coincidental

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FUNCTIONS OF A MORTALITY COMMITTEE IN A COMMUNITY HOSPITAL

To the Editor —One of the most difficult requirements of the Joint Commission on Accreditation of Hospitals is that the hospital staff shall discuss deaths Such discussions are especially hard to conduct in the community hospital, where individual physicians are, naturally, reluctant to have the cases treated by them discussed before an open staff meeting

To fulfill this requirement fairly and reasonably, the mortality committee is composed of representatives from the medical, surgical, obstetric, and pathological departments Each death during the month is listed with physician, autopsy findings, date of admission, and date of death This information is compiled before the staff meeting and handed to physicians at the meeting Any staff member is welcome and encouraged to raise any discussion concerning these deaths Obviously, it is impossible and impractical to discuss each death in detail, so deaths are placed in two categories

For category 1, the mortality committee may each month select from the list of all deaths one or two that should be discussed because of their special interest or teaching value The attending physician is asked to prepare a summary that is also handed to physicians at the time of the staff meeting The attending physician then reads this summary at the staff meeting, and the pertinent points in diagnosis and treatment are discussed Should a physician fail to prepare such a summary or fail to present it, a member of the mortality committee prepares and reports the case

Category 2 consists of all deaths that occur following operation Thus, a summary is automatically required for any patient who was operated on and who died during that admission The operating surgeon presents the summary Again, if the physician fails to write the summary, it will be prepared and reported by the mortality committee

A mimeographed paper listing the categories is prepared each month and presented to each physician at the staff meeting The chairman of the mortality committee leads the critique and encourages any discussion on questions regarding the deaths, which are usually not of sufficient interest to warrant lengthy discussion In the category 1 type of deaths, which are of particular interest, various physicians are asked to discuss and criticize, or commend, the management The same procedure applies to the deaths after operation in category 2 In this manner, all deaths are at least presented before the staff Furthermore, the method is a useful one by which the community hospital may carry out, in part, the requirement of the Joint Commission on Accreditation that a thorough review and analysis of clinical work done in the hospital—on at least a monthly basis—be reported in writing

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GOVERNMENT SERVICES

AIR FORCE

Five Year Training Program.—The nine carefully selected regular Air Force medical officers who completed the advanced course at the School of Aviation Medicine, Randolph Field, Texas, Aug 19, have embarked on a training program that covers five years and will qualify them as specialists in aviation medicine The nine graduates had previously completed the primary course for squadron surgeons given at the school The year of study just completed is the first of two years, the second of which will be taken at a civilian medical school Two men are going to Johns Hopkins University and the other seven to Harvard After finishing the two years of academic training and a two year residency at Air Force medical installations the officers will be eligible to take the board examinations in aviation medicine In the group of officers taking this special training, which will be given to one class of about the same size each year, the Air Force expects to find its future leaders in research, education, and administration. The nine graduates were Majors George R Anderson, David H. Beyer, Richard M Fenno, John P McCann, Robert K. Quinnell, and Raymond A Yerg, and Captains Henry C. Moritz Jr., Walter H. Smartt, and Charles W Westerbeck

NAVY

Personal—Vice-Admiral Clarence J Brown, M C, retired, has been appointed medical consultant to the department of the Youth Authority, state of California, with headquarters in Sacramento Until his retirement on May 1, Admiral Brown served as Deputy Surgeon General of the Navy

PUBLIC HEALTH SERVICE

Grants for Medical Research—The Surgeon General has approved federal grants totaling $14,685,671 for 1,442 medical research projects in the major diseases afflicting Americans The grants were approved during recent meetings of the seven national advisory councils Four hundred fifty-nine of the awards, totaling $4,568,073, were for new research projects, and 983, totaling $10,117,598, were for continuation of existing projects The awards were made to scientists in 335 research institutions in the United States and are administered by the National Institutes of Health research bureau of the Public Health Service These amounts represent about 60% of the fiscal year 1955 funds appropriated by Congress for medical research projects ($33,918,000) supported in whole or in part by Public Health Service grants The grants award program covers support of research in the medical and biological sciences, particularly research in the causes and treatment of heart disease, cancer, mental illness, arthritis and other metabolic diseases the neurosensory and neuromuscular diseases (glaucoma, retrolental fibroplasia, multiple sclerosis, cerebral palsy, and epilepsy) diseases of the teeth and oral cavity and certain diseases of microbiological origin, such as influenza, infectious hepatitis the common cold, and malaria Other projects supported by PHS research grants are concerned with fundamental exploration of metabolic and biological phenomena underlying the causes of most of the noninfectious diseases

The Public Health Service is assisted in its evaluation of research grant applications from medical scientists by two types of advisory and consultative bodies. The first of these, called "study sections," consists of 17 panels of more than 200 leading technical experts representing many branches of modern medical science The second group consists of the seven national advisory councils established by Congress and composed of leaders in the medical sciences in education and in public affairs

Before applications for research grants can be approved by the Surgeon General, they must first be approved by an advisory council Each of the councils reviews the actions recommended by the study sections, supports or changes the recommendations, and sends the applications to the Surgeon General

Institute of Arthritis and Metabolic Diseases—Dr DeWitt Stetten Jr has been appointed associate director in charge of research of the National Institute of Arthritis and Metabolic Diseases, Bethesda, Md. The appointment was announced by Dr Floyd S Daft, director of the institute Dr Stetten will direct the institute's integrated program of fundamental research and clinical investigation into problems related to the several forms of arthritis and such metabolic diseases as diabetes, vitamin deficiencies, gout, obesity, and disorders of the blood, bones and liver He was, for several years, chief, division of nutrition and physiology, Public Health Research Institute of the City of New York, Inc He has served also as assistant professor of biological chemistry at Harvard medical school, Boston and assistant professor of biochemistry, College of Physicians and Surgeons Columbia University, N Y He is a member of the editorial boards of four medical journals, the *American Journal of Medicine Metabolism Journal of Chronic Diseases* and the *Journal of Biological Chemistry* He received his undergraduate degree from Harvard College, and his M D and Ph.D from Columbia University

Medical Aid for Flood-Stricken Pakistan—President Eisenhower dispatched by air last week end an 86-man emergency medical force to assist flood-stricken East Pakistan Dr Alexander D Langmuir, who heads the force took with him a half dozen of the Public Health Service's experts in fighting large-scale epidemics Dr Langmuir is the chief epidemiologist of the Public Health Service's Communicable Disease Center in Atlanta, Ga Reports from Pakistan to the Foreign Operations Administration indicate that 7 million persons have been left homeless or seriously affected by the unprecedented floods that have followed the monsoons Chief concern of the Pakistan government is the threat of major epidemics of typhoid fever, dysentery cholera, and malaria The Army has already dispatched to Pakistan 40 two-man teams of medical corpsmen to work with the PHS group

Predoctorate Research Fellowships.—The Surgeon General announces a predoctorate research fellowship program at the National Institutes of Health in Bethesda, Md These research fellowships in health medical sciences, and related fields are available to successful candidates with bachelor's or master's degrees or equivalent training. Basic stipends are first year, $1,400, intermediate year, $1 600, terminal year $1,800 In addition to the basic stipend, $350 allowance is made for spouse and each dependent child Basic tuition and certain travel allowances are paid Application may be made at any time Information may be obtained from Research Fellowships Branch, Division of Research Grants, National Institutes of Health, Bethesda 14, Md.

VETERANS ADMINISTRATION

Personal—The following two appointments to the staff of the Department of Medicine and Surgery, Washington D C have been announced Dr Linus A Zink, formerly director of hospitals and clinics, has been promoted to deputy director for operations Dr Irvin J Cohen formerly manager of the VA hospital at Baltimore has been appointed to the central office post of deputy director for hospitals

The Veteran Population.—The Veterans Administration reports that as of June 30, 1954, the total number of veterans in civil life was 20,850 000 and of these 15 425,000 were World War II veterans, 3 236 000 World War I veterans and 2 189 000 veterans of other wars and the regular establishment The last figure includes veterans with service only since the start of the Korean campaign and former regular establishment members of VA compensation rolls On June 30 the total daily patient load in VA and non-VA hospitals was 109 640 of which number 4 790 patients were in non VA hospitals The total number of site acquisitions for new hospitals, as of June 30 1954, was 66 and the total number of new hospitals completed was 60 while 6 new hospitals were still under construction In the hospital addition and conversion program 52 additions and conversions had been completed, 4 were in progress and 2 other construction contracts had been awarded

COMMITTEE ON MENTAL HEALTH

The following "Resolution on Relations of Medicine and Psychology" was developed jointly by special committees of the American Psychiatric Association, the American Psychoanalytic Association and the Committee on Mental Health for the purpose of presenting a united front concerning the fact that "psychotherapy" is a special form of medical treatment that should be selected for use according to medical criteria, and that "psychotherapy" does not form the basis for a separate profession

This resolution has been submitted to and approved for publication by the board of trustees of the American Medical Association the council of the American Psychiatric Association, and the executive council of the American Psychoanalytic Association

R J PLUNKETT, M D, *Secretary*

RESOLUTION ON RELATIONS OF MEDICINE AND PSYCHOLOGY

For centuries the Western world has placed on the medical profession responsibility for the diagnosis and treatment of illness Medical practice acts have been designed to protect the public from unqualified practitioners and to define the special responsibilities assumed by those who practice the healing art, for much harm may be done by unqualified persons, however good their intentions may be To do justice to the patient requires the capacity to make a diagnosis and to prescribe appropriate treatment Diagnosis often requires the ability to compare and contrast various diseases and disorders that have similar symptoms but different causes Diagnosis is a continuing process, for the character of the illness changes with its treatment or with the passage of time, and that treatment which is appropriate may change accordingly

Recognized medical training today involves, as a minimum, graduation from an approved medical school and internship in a hospital Most physicians today receive additional medical training, and specialization requires still further training

Psychiatry is the medical specialty concerned with illness that has chiefly mental symptoms The psychiatrist is also concerned with mental causes of physical illness for we have come to recognize that physical symptoms may have mental causes just as mental symptoms may have physical causes The psychiatrist, with or without consultation with other physicians, must select from the many different methods of treatment at his disposal those methods that he considers appropriate to the particular patient His treatment may be medicinal or surgical, physical (as electroshock) or psychological The systematic application of the methods of psychological medicine to the treatment of illness, particularly as these methods involve gaining an understanding of the emotional state of the patient and aiding him to understand himself, is called psychotherapy This special form of medical treatment may be highly developed, but it remains simply one of the possible methods of treatment to be selected for use according to medical criteria for use when it is indicated Psychotherapy is a form of medical treatment and does not form the basis for a separate profession

Other professional groups such as psychologists, teachers, ministers, lawyers, social workers, and vocational counselors, of course, use psychological understanding in carrying out their professional functions Members of these professional groups are not thereby practicing medicine The application of psychological methods to the treatment of illness is a medical function Any physician may utilize the skills of others in his professional work, but he remains responsible, legally and morally, for the diagnosis and for the treatment of his patient

The medical profession fully endorses the appropriate utilization of the skills of psychologists, social workers, and other ional personnel in contributing roles in settings directly supervised by physicians It further recognizes that these professions are entirely independent and autonomous when medical questions are not involved, but when members of these professions contribute to the diagnosis and treatment of illness, their professional contributions must be coordinated under medical responsibility

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IVES HENDRICK, M D
President
American Psychoanalytic Association

MEDICAL FILM REVIEWS

Fractures of the Humerus 16 mm color sound showing time 25 minutes Produced in 1953 by Churchill-Wexler Productions, Los Angeles, for and procurable on loan from Presentation Division the Veterans Administration, Vermont and H St., N W, Washington 25 D C.

The anatomy of the bones and muscles with their pulls that cause displacements is demonstrated In each fracture the dangers of ill-advised manipulations are shown Methods of reduction and maintenance of position are demonstrated, and the reasons for various manipulations are brought into bold relief This film is highly recommended for medical students, interns, and residents It will also serve as an excellent review for orthopedic surgeons The photography and animation are exceptionally well done

Operative Procedure for Total Urinary Incontinence (PMF 5202) 16 mm color sound showing time 20 minutes Produced in 1952 by the Department of the Army Procurable on loan from Surgeon of the Army area in which the requestor resides

This is a case-report type of film depicting on the cadaver the operative technique of using fascial transplants of the external oblique muscle that are swung down through tunnels under the symphysis and the membranous urethra The technique demonstrated had been used on one patient in whom total urinary incontinence developed due to injury of the external sphincter during transurethral prostatic resection The film concludes with a few postoperative sequences of the actual patient during the act of voiding No justification was given for doing this elaborate procedure rather than simpler techniques used in the past The surgical technique as shown was essentially correct The photography is well done This film will be of interest chiefly to urologists

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Functional Digestive Disease—Functional disturbances of the digestive tract may be classified into 1) those caused entirely by a psychic factor such as emotional trauma or excessive nervous tension, they are transitory, easily identified and cured by relief of the instigating factor, 2) those having a psychic background, but which are no longer transitory but sustained in a groove of poor digestive function with habitual incoordination, and 3) those in which disturbance in coordination is caused by direct interference, through the use of food difficult of digestion, and excesses in smoking, alcohol and the use of laxatives In the second and third groups the etiologic factors may be intermingled, to the extent that sustained central nervous disturbances may result in interference on the part of the patient by means of laxatives or roughage in food and, conversely, habitual interference may result in nervous disturbances Only in the first group with its transient manifestations of digestive dysfunction is the term psychosomatic exclusively applicable, and in these cases treatment for nervous disturbances alone is effective —Sara M Jordan, M D, Functional Digestive Disease in the Aged, *The Journal of the American Geriatrics Society*, November, 1953

THE LEISURE CORNER

FOR THE LOVE OF CHESS

Not too long ago as history goes, Dr Sigmund Tarrasch, a German physician who had nearly attained the status of world champion chess player earlier in the century, summarized the satisfaction that is obtained from playing chess in a few, expressive words 'I have always had a slight feeling of pity," he declared in an essay on chess, 'for the man who has no knowledge of chess, just as I would pity the man who remained ignorant of love Chess, like love, like music, has the power to make man happy ' That this experience is widely shared has been confirmed by the experiences of countless chess devotees over a period of some 1,500 years

Although the precise origin of chess is submerged in a haze of obscurity, chess, as far as is known, dates back to India in the fifth century A D During the Middle Ages the game was introduced in Europe, where it soon became the most fashionable pastime of the leisured classes (As a parenthetical reminder of the days when chess was regarded as both the sport of kings and the king of sports, it is interesting to note that chess is the only game permitted in the British House of Parliament) Came the democratization of life, and the popularity of chess grew by leaps and bounds By the middle of the 19th century chess centers were established in every large city of Europe, the British Isles, and the United States, and numerous magazine and newspaper columns devoted exclusively to chess attracted thousands of ardent readers Today, chess is an integral part of our culture, distinguished by an endless stream of tournaments, club affairs, and literature dealing with every aspect of the game

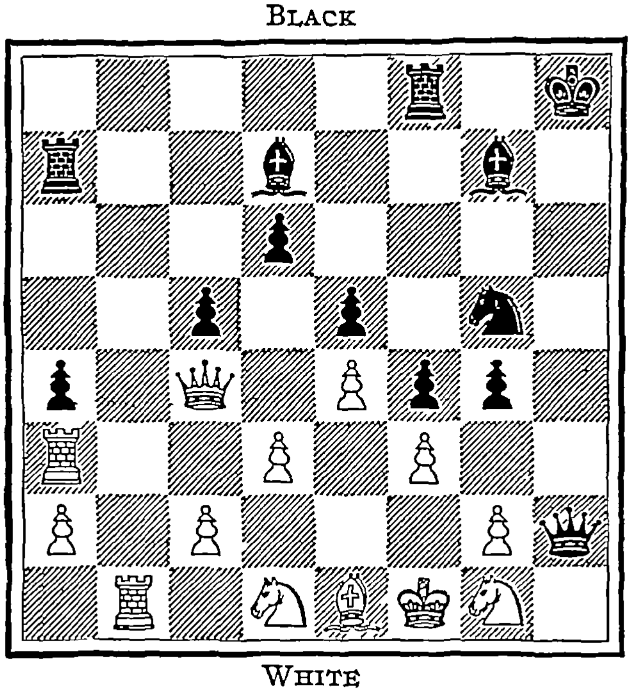
As a mere pastime chess is learned quickly, even though some persons regard it as weighted with sedation and far too difficult for anyone to master but mathematicians, statisticians, actuarial experts, and the like Actually, a modest amount of study will enable many chess-disposed physicians to become pretty fair players Like most games of skill, mastery of chess does take time and study, however, the beginner can extract considerable pleasure right from the start, and the pleasure thus derived is almost certain to multiply as the chess player s game improves One obstacle to the spread of interest in chess has been its alleged difficulty Even though chess is not as simple as tick-tack-toe, anyone can learn to play chess in half an hour Naturally, there is more to chess than knowing how to move the pieces, however, the very complexity of the game is the source of its fascination Indeed, one of the peculiar attractions of chess is that if two beginners are equally matched it is almost certain that they will feel the same interest in the game as though they were thoroughly versed in its intricacies

Excellence in chess is attained only by persistent concentration on the game A truly proficient player must not only learn the subtle variations in which the game abounds but also be able to apply his knowledge, resources, and powers of analysis in attack and defense On the surface, chess provides a pleasant and refreshing diversion, but to some chess players the intensely competitive aspects of the game arouse deep-seated instincts Dr Emanuel Lasker, a mathematician who ruled the world of chess as a champion for many years, maintained that the spirit of combat during chess play was in itself rewarding and that two chess players competing over a board could aptly be compared to two generals on a battlefield, the strategy and tactics of chess being similar in spirit to actual warfare

The argot of chess typifies the international flavor that has invaded languages the world over The name of the game is derived from the Persian phrase Shah mat,' or the king is dead' From the German stem such recognizable terms as "blitz" (lightning chess), "sitzfleisch (the ability to patiently wait out an opponent) and 'zugzwang" (forced move) From France come en passant" (an uncommon form of capture of a pawn) 'en pris" (attacked) and j adoube (I adjust—relieving the player of the necessity of moving a piece that has been touched) Italian contributions include the words "fianchetto (from the side), 'gambit (sacrifice, usually of a pawn) and tempo" (time element) Yiddish has contributed the comical term "potzer," which means a clumsy or careless player

The general type of chess pieces in use today was designed about a century ago in England The names attached to chess pieces reflect the age of chivalry at the time of the Crusades, with the king, queen, bishop, knight, castle, and pawn characterizing the structure of medieval society Chess is as rich in eponyms as is medicine Openings in the game, traps, defenses, gambits, and positions have been named after famous chess masters, cities, and countries—for example, the Dutch opening, the Danish gambit, the Steinitz defense, and the Ruy Lopez opening

Of the estimated eight million chess players in the United States alone, most devotees play chess across the board or by correspondence or else solve chess problems, which are artificial positions on the chess board permitting mate in a specified number of moves, with play involving elements of strategy or beauty By chess players who are shut-ins or who live at great distances from each other, correspondence chess is played one or more moves at a time via the postal route Thousands of correspondence players in the United States are grouped into correspondence clubs publishing their own magazines, conducting their own tournaments, and crowning their own champions While it is not generally known, chess has also been played by cable, telegraph, radio, telephone, and semaphore



Chess is an ideal form of recreation for physicians because while the game is played it is impossible to be concerned with the trials of medical practice, the national business picture or the pros and cons of the international situation Whether he likes it or not, the chess player must divorce himself from thoughts of everything else in order to concentrate on the chess pieces and the board As with most hobbies chess serves as a method for making new friends Physicians who travel often find the game to be a strong bond linking them to other medical colleagues Even when language serves as a barrier, communication between two persons can be established effectively over a chess board.

Finally a brief comment about the disadvantages of a fascinating hobby, for one, conversation languishes during a chess game and for another, chess has so strong an attraction for some players that the compulsion to play the game almost amounts to addiction Chess can become a time-consuming obsession it is true but so can any other game if it is taken too seriously For most physicians who take the game in a lighthearted spirit and who have learned to play for the sheer fun of it chess is a never failing source of intelligent amusement.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Sickle Cell Disease An Analysis of Recent Advances J E Moseley and J B Manly J Nat M A 46 177-181 (May) 1954 [New York]

Although previously the frequency of the sickling phenomenon had been estimated to be approximately 7% in the American Negro, improvements in techniques have shown that the frequency is between 9 and 10% It is further estimated that hemolytic anemia develops in 1 to 2% of those who have the sickling trait After commenting on the abnormalities of the hemoglobin molecule in the sickling phenomenon and on the inheritance of sickling the authors deplore the fact that, despite the frequency of sickle cell disease among the American Negro population, cases are frequently overlooked or incorrectly diagnosed Many patients with abdominal crises of sickle cell anemia or with cholelithiasis due to pigment calculi resulting from increased blood destruction have been operated on without suspicion of the underlying cause Patients with the sickle cell trait who have bone and joint pain due to thrombosis and infarction are often treated for years for arthritis The authors recently observed two patients with gross hematuria in whom intravenous pyelography and cystoscopy were negative Both had sickle cell anemia The diagnosis in one was suggested by bone lesions in a part of the skeleton that was included in the pyelographic x-ray studies The urologic literature had several reports of such cases Many cases diagnosed as "idiopathic" or "essential hematuria" are attributable to sickle cell disease Because sickle cell disease is essentially a disturbed blood physiology, its clinical manifestations are diverse, it rivals syphilis as an imitator of other diseases Skeletal changes result from hyperplasia of the erythroblastic elements of the bone marrow and from intraosseous vascular thromboses The medullary spaces of the long bones are widened and the cortices become thin and the trabecular pattern irregular In the flat bones there may be exaggeration of the trabecular markings and the vertebrae may become demineralized and cupped In the skull, there may be widening of the diploic space between the inner and outer tables with thinning of the outer table The changes are usually most marked in the parietal region Several distinct hematological disorders may develop in persons with the sickling trait, and so it is no longer sufficient simply to speak of sickle cell anemia without attempting to establish the genetic factors or the forms of hemoglobin responsible for the disease

Death from Cat Scratch Disease. S Graff Monatsschr Kinderh 102 232-237 (April) 1954 (In German) [Berlin, Germany]

Graff reviews the present status of knowledge on cat scratch disease, pointing out that it is a lymphadenitis, which, depending on the site of invasion of the causal factor, presumably a virus, may become manifest as a cutaneoglandular, a tonsilloglandular, or an oculoglandular type According to Mollaret, the diagnosis can be verified with the aid of a complement fixation test some weeks after the appearance of the glandular process Although it has been generally accepted that the disease runs a favorable course, terminating in spontaneous cure, Graff reports the case of a 30-month-old boy who died after an attack of cat scratch disease Cat scratch disease was thought of on the basis of the clinical aspects and the results of postmortem examination Inquiry revealed that the child had played with a cat (kissing, etc) and that the cat had been sick with diarrhea and vomiting The boy had the tonsilloglandular type of the disease, which within about 10 days led to a generalized toxic infection Histological studies revealed the typical reaction of cat scratch disease particularly in the lymphatic tissues of Waldeyer's tonsillar ring and the regional lymph nodes The author lists factors indicative of infection by the cat, but objects to the term cat scratch disease, pointing out that scratching by the cat is not necessary and that other forms of contact may transfer the disease He suggests the term felinosis as preferable to cat scratch disease

Atabrine in Treatment of Tapeworm K M Paeckelmann Deutsches med J 5 244-245 (May 15) 1954 (In German) [Berlin, Germany]

Paeckelmann says that the efficacy of quinacrine (Atabrine) against tapeworm was discovered in 1944 in South America in the course of a prophylactic campaign against malaria He reviews the literature and reports his own observations on the use of quinacrine in tapeworm Some reports were rather indefinite as to the number of patients treated, but emphasized the efficacy and good tolerance for this drug In 347 of 488 patients with Taenia saginata or Taenia solium, who were treated with quinacrine, the tapeworm with head was expelled, and, in an additional 46 patients, a tapeworm was expelled, but the head could not be found The administration of quinacrine in the treatment of tapeworm was as follows The evening before the patient generally abstained from eating On the next morning, while still fasting, he was given 0 8 to 1 gm of quinacrine Two hours later, 20 to 30 gm of a saline cathartic was given, and the tapeworm was expelled within two to four hours Occasionally quinacrine may cause vomiting, and this may interfere with the success of the treatment Quinacrine can be administered by the duodenal tube This mode of administration increases the chances of success The author feels that quinacrine approaches the requirements of an ideal anthelmintic more nearly than do preparations customarily used The administration of quinacrine in 1 gm doses is not likely to cause toxic manifestations, if contraindications to its use are absent The anthelmintic dose can be repeated after several days if this should prove necessary Success may be expected in from 80 to 90% of cases

Intractable Angina Pectoris Treatment with Fractional Doses of Radioactive Iodine J B Wolffe, A D Dale and E I Siegal J Am Geri Soc 2 288-292 (May) 1954 [Baltimore].

Wolffe and associates feel that the irreversibility and risk associated with thyroidectomy in patients with angina have made this approach too drastic Thiouracil and other antithyroid drugs carry with them the danger of agranulocytosis The advent of radioactive iodine (I^{131}) has made available a new, effective and easily controlled therapeutic agent This report is based on observations on 32 patients who were treated with radioactive iodine Twenty-four were euthyroid, five were hypothyroid, and three were hyperthyroid Four of the 32 patients with intractable angina experienced complete remission of symptoms with one dose of I^{131} (average, 10 mc) Ten patients had some relief after one dose of I^{131} and complete remission of symptoms after a second dose The average total dose was 22 mc These 14 patients showed signs of depressed thyroid activity, in fact, the degrees of relief from anginal seizures in many instances seemed to be in direct proportion to the decrease in thyroid activity obtained with the use of I^{131} Twelve patients experienced some relief of symp-

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The place of publication of the periodicals appears in brackets preceding each abstract

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individual subscribers, provided they reside in continental United States or Canada Requests for periodicals should be addressed 'Library, American Medical Association" Periodical files cover 1945 to date only, and no photoduplication services are available No charge is made to members, but the fee for other borrowers is 15 cents in stamps for each item Only three periodicals may be borrowed at one time, and they must not be kept longer than five days Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order Reprints as a rule are the property of authors and can be obtained for permanent possession only from them toms following two courses of I^{131} but showed minimal evidence of depressed thyroid activity The two doses averaged 16 mc A third dose has been administered to this group but reevaluation has not yet taken place. Six patients had no alleviation of symptoms following two courses of therapy with an average total dose of 18 mc. The authors feel that a combination of prevailing forms of therapy with I^{131} is more effective than either type of treatment alone The underlying cause or causes of the anginal attacks should be treated

The Heart and Gall Bladder Disease. J R Beckwith, A. G Hampton, D T Kernodle and others Virginia M Month 81 211-214 (May) 1954 [Richmond, Va]

Beckwith and associates emphasize the apparent close association between coronary disease and cholecystitis and review the evidence that impulses occurring in the biliary tract and other abdominal viscera may act as trigger mechanisms in the production of various cardiac arrhythmias and angina pectoris The differential diagnosis between the two conditions is often difficult because of the fact that the pain impulses may be transmitted to the same or overlapping areas in the spinal cord They present histories of several patients in whom cardiac abnormalities subsided after cholecystectomy They describe a case of gallbladder disease resembling angina pectoris and one of myocardial infarction resembling gallbladder disease A review of the records of 107 men and 100 women who had undergone cholecystectomy revealed that, of the men, 10 died postoperatively None of the women died There were 38 men with heart disease, of whom 3 died as a result of this, and three died as a result of noncardiac conditions It appears that a patient with coronary disease, particularly a man, incurs a mortality risk of between 5% and 10% when undergoing cholecystectomy It is difficult to determine in a given patient what effect a diseased gall bladder has on the heart, but, in many patients with symptoms of cholecystitis associated with those of coronary disease or of arrhythmia, the risk of cholecystectomy is justified because of the likelihood that the gallbladder is a trigger mechanism that potentiates the symptoms of coronary disease or of arrhythmia

Endomyocardial Fibrosis J D Ball, A W Williams and J N P Davies. Lancet 1 1049 1054 (May 22) 1954 [London, England]

The authors, who work in Uganda, Africa, suggest that endomyocardial fibrosis is the cause of much of the heart disease of obscure cause seen there They analyze a series of 20 patients whose disease was proved at necropsy In this condition large areas of firm white fibrous tissue are seen on the endocardial surface of the ventricles, commonly involving the structures of the auriculoventricular valves, particularly the posterior mitral cusp and chordae, with resulting mitral insufficiency In some cases an obliterative effect is produced, reducing the capacity of the right ventricle Parietal thrombus is common In Africa persons suffering from endomyocardial fibrosis are generally of the lowest economic level Of this series of 20 patients, 5 died within a few days of admission to the hospital, but most patients lingered for weeks or months in a waterlogged condition unhelped by treatment. In some cases, intercurrent infection contributed to death The authors longest period of observation was 20 months, this patient had a history of recurrent attacks of edema for two or three years previously Another patient had had symptoms for seven years These were the longest histories among the 20 and both patients had endomyocardial fibrosis of the obliterative type with gross fibrosis that appeared to be of long standing. Evidently some patients can survive the initial injury for many years, fibrosis proceeding to a point at which cardiac disability becomes stationary or only very slowly progressive, as in rheumatic heart disease A few patients have been seen at necropsy with localized patches of superficial endomyocardial fibrosis at the apex of one of the ventricles In them the cause of death was not attributable to this lesion and there was no reason, from the clinical evidence available to suspect any impairment of cardiac function during life The response to treatment of heart failure by bed rest with digitalis, mercurial diuretics, and aspiration of fluid was disappointing. Nothing is known about the earlier stages of this disease, and its cause is also unknown

Eosinophilic Granuloma of the Lung W F Mazzitello New England J Med 250 804-809 (May 13) 1954 [Boston]

Eosinophilic granuloma of the lung without associated skeletal or visceral lesions was first described by Farinacci and others in 1951 They observed these lesions in two enlisted men, both of whom had chronic cough, weight loss, exertional dyspnea, and chest discomfort. The diagnosis was made by thoracotomy and lung biopsy The histological appearance of the excised nodules had features identical with that of eosinophilic granuloma of bone Mazzitello presents two similar cases that likewise were verified by thoracotomy and lung biopsy The similarity of these pulmonary lesions to the isolated skeletal lesions of eosinophilic granuloma is pointed out, and a similar chronic benign clinical course is expected Mazzitello mentions the studies of various investigators particularly a recent review by Lichtenstein, in which the confusion in terminology is deplored, and the new term "histiocytosis X" is suggested as an all inclusive name, with eosinophilic granuloma as a localized form, and Letterer-Siwe s disease and Hand-Schüller-Christian's disease (lipid histiocytosis of the cholesterol type) as disseminated forms The term 'histiocytosis" refers to the essential type of histological cellular reaction occurring in these diseases, and "X" indicates the need for the identification of an etiological agent. The treatment of the pulmonary lesions is still undecided Many more cases will have to be evaluated to determine accurately the effectiveness of corticotropin, cortisone, and x-ray therapy

Bronchial Carcinoma—A Pandemic. J Clemmesen Danish M Bull 1 37-46 (April) 1954 (In English) [Copenhagen, Denmark]

Clemmesen feels that the greater part of the increase in frequency of cancer of the lung, which became evident during the first years of this century, may well have been apparent only and caused by the prolongation of the average length of life together with progress in diagnostic technique, but it should be realized that the latter cannot change the sex ratio for cancer of the lung From autopsy records in Denmark it appears that the increase in bronchial carcinoma cannot have begun before 1926 and the rise is doubtful up to 1930 The author raises the question as to whether air pollution plays a part in the increase in bronchial cancer The incidence of lung cancer in districts free of air pollution does not indicate that this cancer will be reduced by complete abatement of air pollution Inquiries have revealed a higher number of heavy smokers among patients with bronchial carcinoma than among control persons However, since there are nonsmokers with bronchial carcinoma, and a large number of smokers without the disease, the figures often fail to convince lay readers The author feels that from reported studies it seems impossible to escape the conclusion that a mortal disease, which demands decades for its development, and probably as lengthy efforts for its prevention, is now increasing on a pandemic scale because of widespread addiction to smoking.

Use of Hexamethonium in Arterial Hypertension D A Rytand California Med 80 375-376 (May) 1954 [San Francisco]

According to Rytand, hexamethonium properly given reduces blood pressure appreciably in most hypertensive patients With the patient under careful observation in a hospital the first two doses of the drug several hours apart should not exceed 5 mg each in order to avoid syncope or more severe depressor reactions Since tolerance appears promptly, the dose must be increased during the next few days or even weeks according to the patient s response This requires careful observation and many determinations of arterial pressure levels especially in the hour or two immediately following an injection. The use of the drug is associated with prominent and unpleasant side-effects fall of pressure sometimes precipitates acute myocardial infarction, hemiplegia, uremia, or even death Hexamethonium is, therefore, suitable for relatively few hypertensive patients (rather young ones with severe or malignant syndromes) and often fails in those with renal insufficiency who most need help Of 24 hypertensive patients so treated, 12 died of the disease, and, of the other 12, only 2 cared to go on with the injections after one year, symptoms were too unpleasant and results too unimpressive for the others The degree of care required to obtain satisfactory effectiveness is such that the program of treatment becomes too unwieldy for general use

Acute Pancreatitis, Clinical Study of One Hundred Cases W F Becker J Louisiana M Soc 106 166-170 (May) 1954 [New Orleans]

One hundred consecutive cases of acute pancreatitis observed between 1943 and 1952 at the Charity Hospital in New Orleans are reviewed Only those patients are included, in whom laparotomy or autopsy demonstrated acute pancreatitis or who presented a consistent clinical picture in conjunction with an increase in serum amylase The number included 84 cases of acute edematous pancreatitis and 16 cases of acute pancreatic necrosis Alcoholism has been described as a predisposing factor in acute pancreatitis Twenty-two per cent of the patients in this series were chronic alcoholics, and in 13% the onset of acute abdominal pain was known to have followed ingestion of alcohol Four patients had acute pancreatitis within three months after termination of pregnancy, and in each instance there had been similar but less severe attacks during pregnancy The sudden onset of severe abdominal pain was the initial symptom in over 90% of the cases In 13 cases it appeared shortly after the ingestion of a heavy meal The pain was usually severe and steady and first involved the upper abdomen Nausea was experienced by 90% of the patients, and vomiting occurred in 82% A firm, fixed, tender abdominal mass was present in 11 cases The mass was in every instance a pseudocyst or abscess and occurred only in the patients with acute pancreatic necrosis The mortality of the series was 12%, of the 84 patients with acute edematous pancreatitis 3 died, of the 16 with acute pancreatic necrosis 9 died One-third of the patients were subjected to early operation, in most instances because of errors in diagnosis This poor diagnostic showing can in part be ascribed to the fact that during the early years of this study facilities for the performance of the serum amylase test were not available in this institution at night A preoperative determination of the serum amylase was performed in only 18 of the 34 patients subjected to operation Conservative treatment is best in most cases of acute pancreatitis Early operation should perhaps be restricted to those instances in which the diagnosis cannot be established with reasonable certainty or when there exist signs of biliary tract obstruction, suppuration or cystic accumulations Acute pancreatitis is now being recognized with increasing frequency largely because of a keener awareness of the condition and the more frequent use of the serum amylase test At the Charity Hospital in New Orleans acute pancreatitis seems to be about one-tenth as common as acute mechanical intestinal obstruction and about one-fiftieth as common as acute appendicitis

Salicylates and the Plasma Level of Adrenal Steroids R I S Bayliss and A W Steinbeck Lancet 1 1010-1011 (May 15) 1954 [London, England]

The possibility that salicylates act as antirheumatic agents by increasing the secretion of adrenocortical steroids either by stimulating the endogenous production of corticotropin or by directly stimulating the adrenal glands was investigated by measuring the plasma level of circulating adrenocortical steroids before and after salicylate therapy, since an increase in the secretion of the steroids by either of the mechanisms suggested would presumably lead to an increase in their plasma level Acetylsalicylic acid was given to seven patients with either acute rheumatic fever or moderately severe rheumatoid arthritis at intervals of four hours in dosages ranging from 0 75 to 1 75 gm , and to four other patients in a single large dose of from 3 3 to 5 3 gm in water No significant increase in the level of the circulating adrenocortical steroids could be detected in either group of patients, although high plasma salicylate levels were obtained in three patients and were accompanied by salicylism severe enough to require reduction of the dosage in one These findings indicate that the pituitary-adrenal system is not stimulated by salicylates given in clinical dosage

Rheumatoid Arthritis An Evaluation of Long-Term Treatment with Cortisone E P Engleman, M A Krupp, W W Saunders and others California Med 80 369-374 (May) 1954 [San Francisco]

Engleman and co-workers report on 36 men and 20 women with rheumatoid arthritis treated continuously with cortisone for periods ranging between 4 and 38 months Fifteen patients received daily doses of 15 to 50 mg of cortisone, 28 received 51 to 75 mg, and 13 received 76 to 100 mg Concomitant therapy included periods of rest, physical therapy, and salicylates in daily doses of 2 4 to 3 6 gm The incidence of subjective improvement exceeded that of objective improvement. Forty nine patients (87 5%) had at least some decrease in pain and stiffness and significant increase in agility and joint mobility The resulting functional improvement was usually sustained as long as cortisone was continued Functional improvement was often observed despite obvious progression and increasing severity of the disease process as revealed by roentgenograms. Twenty-one of the 49 patients who were improved subjectively and functionally were classified on the basis of objective evidence as unimproved or worse The incidence of objective improvement was higher in women, also, in those patients whose disease was in an early stage and of short duration at the time therapy was begun, and who required relatively smaller maintenance doses of cortisone Therapeutic results were not affected by the age of the patient or by the presence of spondylitis Despite precautions, the long-term administration of cortisone was, in some patients, productive of serious undesirable side-effects. Moonface was seen at some time during the administration of cortisone in all but four patients Hypertension was observed in 13 patients, in 3 of whom it was uncontrolled despite reduction to the minimal effective dose of cortisone Cerebrovascular accidents resulting in death occurred in two patients The role of cortisone in those vascular accidents is moot Duodenal ulcer occurred in two patients Pathological fractures of vertebrae occurred in two women aged 77 and 52, both of whom had severe osteoporosis before the administration of cortisone Final opinion regarding the role of cortisone in the treatment of rheumatoid arthritis must await the elapse of more years At present it is obvious that cortisone is not a substitute for conservative and well-established measures Combined with them, it provided in many cases a degree of social and economic rehabilitation, which occurred even in the presence of advancing disease

Fatal Influenza E L Walsh and F Levy West Virginia M J 50 125-127 (May) 1954 [Charleston, W Va]

The case of fatal influenza presented by Walsh and Levy was that of a man, aged 27, who was admitted to the hospital with the complaint of cough of two weeks' duration Five days before admission he awoke with chills, fever, and generalized aches He received 200,000 units of penicillin daily for three days before admission His sputum became rust colored two days before admission He continued to have chills and fever each day, and his cough remained unchanged There was shortness of breath and a sense of fullness Roentgen examination of the chest on admission showed pneumonia in the lower lobe of the right lung The heart was somewhat enlarged Four days later, roentgenograms showed the pneumonia clearing but a pneumonitis beginning in the upper lobe of the right lung Ten days later, the pneumonic process had cleared completely On the day before death, a roentgenogram of the chest showed patchy pneumonitis in the upper and lower lobes of the right lung. At various times during hospitalization the patient was given digitalis, oxytetracycline (Terramycin), penicillin, streptomycin, plasma, cortisone, and corticotropin, but to no avail Microscopic studies of necropsy material revealed large hemorrhages into the pectoral muscles and the overlying subcutaneous fat There was petechial bleeding into the pleura, diaphragm, pericardium, stomach, liver, gallbladder, and small intestines Besides common bronchopneumonic changes, emphasis is placed on desquamated epithelium" and especially the peculiar hyaline deposits in the alveoli The authors cite other reports on fatal influenza, particularly Wolbach's of 1919, which emphasized that death from influenza means death from lung complications " The hyaline deposits were also mentioned by other investigators Opie emphasized in 1928 that "this hyaline material may form a continuous layer resting on the wall of the alveolar ducts and extending across the orifices of the tributary alveoli "

Diabetic Neuropathy Controlled Clinical Trials. C R Shuman and S F Gilpin Am J M Sc 227 612 617 (June) 1954 [Philadelphia]

Three agents—vitamin B_{12}, pregnant mammalian liver extract, and adenosine triphosphate with thiamine or pantothenic acid—were given a therapeutic trial in patients with diabetic neuropathies that had not responded to careful regulation of diabetes with insulin and diet In general, these were the severer neuropathies Vitamin B_{12} was administered to 12 patients, with failure to observe improvement in their neurological disorder Pregnant mammalian liver extract was equally ineffective in 15 patients Subjective improvement occurred in three patients of this group, but it was found that two of these were receiving a placebo that was being used as a control in this phase of the study Adenosine triphosphate with thiamine produced subjective improvement in two of six patients so treated No effect was noted in those receiving pantothenic acid There was no alteration in the objective manifestations of neuropathy with the use of any of the agents employed

Prevention of Insulin Hypoglycemia J I Goodman. Am. Pract & Digest Treat. 5 464-467 (June) 1954 [Philadelphia]

The occurrence of hypoglycemic reactions has constituted a major problem in the management of diabetic patients Since most reactions respond fairly promptly to glucose, administered orally or intravenously, there is a tendency to pass them off as harmless However when the brain tissue has been subjected to severe or prolonged hypoglycemia, widespread, bizarre, and often persistent clinical manifestations may be produced in spite of a normal or even an elevated blood sugar level On the basis of case histories the author demonstrates that residual brain damage transient hemiplegia and even death may result from insulin hypoglycemia The protamine insulin group presents the greatest potential hazard insofar as hypoglycemia is concerned This is true in the case of protamine zinc insulin, but especially so with mixtures of protamine zinc and regular insulin The practice of insisting on the use of long-acting and intermediate insulins for every diabetic patient accounts for many reactions In order to prevent hypoglycemia it is advisable to arrange the diet schedule to provide anticipatory feedings just before the time of maximum insulin action for each type of preparation, i e 2 hours after regular insulin, 6 to 7 hours after globin or isophane (NPH) and at bedtime (16 hours) in the case of protamine zinc insulin Discussing the avoidance of insulin reactions during and after surgical treatment, Goodman says that he prescribes the identical dose of insulin that the patient has been taking right along However, in patients who are unable to take food orally, 5 or 10% glucose solution is administered parenterally continuously until the patient is again able to resume normal eating In the early stages of myocardial infarction there is a tendency to increase the dosage of insulin to compensate for the loss in carbohydrate tolerance This practice may very well lead to hypoglycemia, sometimes with hazardous and even fatal results Since the impaired sugar metabolism following a myocardial infarct is now believed to be part of the stress reaction, it is probably much safer to tolerate hyperglycemia and glycosuria for three or four days and leave the insulin dose as it is Hypoglycemic reaction must be feared in patients with vascular disease because of the disastrous complications that may accompany circulatory collapse, aside from fresh myocardial infarcts

Tung Nut Poisoning E. Balthrop, W B Gallagher, T F McDonald and S Camariotes J Florida M A 40 813-820 (May) 1954 [Jacksonville, Fla]

The tung nut tree, Aleurites fordii, long has been grown in China as a source of tung oil Its introduction into the United States and the rapid spread of its cultivation in the southeastern states has created a great new American industry The mature tung nuts are crushed and their oil is expressed for use in the paint industry and allied fields The whole ripe nut looks like a large walnut, and the unhulled seed is similar to a Brazil nut. The mature nut fresh from the tree has a sweetish taste like a chestnut, while the older, stored nut has a pleasant toasted almond flavor that is spoiled by the rancid after-taste that tung oil leaves in the mouth Tung nuts are toxic Cultivation of the tung tree for commercial and shade tree purposes is spreading Because of these facts, especially the use of tung trees in urban areas where children have access to the nuts, tung nut poisoning is apt to become commoner Tung nut poisoning is discussed and the literature reviewed The primary toxic agent in tung nuts is a foreign protein, an albumin, causing gastrointestinal symptoms (nausea, vomiting, diarrhea) in mild cases, with shock and respiratory depression in severe cases The treatment of tung nut poisoning is symptomatic, as it is for any food poisoning due to a foreign protein The administration of magnesium sulfate by mouth seems to denature the protein Whether this change is accomplished by its cathartic action, by osmotic dilution of the offending protein, or by salting out of the protein by the sulfate ion is not known Concomitant with the use of magnesium sulfate, fluid and electrolyte replacement therapy is indicated especially for severely poisoned patients suffering from anaphylactoid reactions and potassium deficiency Central nervous system stimulants and oxygen should also be used when indicated In an extreme case corticotropin might be administered intravenously

SURGERY

Indications for Surgical Treatment in the Anemic Forms of Diaphragmatic Hernia of the Stomach P Santy, J Favre-Gilly and L. Laroyenne Lyon chir 49 285-296 (April) 1954 (In French) [Paris, France]

The authors observed 16 cases of severe anemia produced by gastric hernia at the esophageal hiatus Their experience has been that anemia occurs in about 25% of cases of diaphragmatic hernia. The syndrome is four times as common in women as in men It appears in two different age groups—in young children and in adults between 50 and 60 years of age Sometimes anemia follows hematemesis or melena, in other cases, the anemic symptoms are mixed with digestive symptoms, such as postprandial epigastric pain, or with pulmonary symptoms The patients are often classed as having cardiac or coronary disease because of dyspnea or sternal constriction Sometimes venous thrombosis is the presenting symptom, but often anemia is the only symptom and is classified as essential Blood examinations usually show very hypochromic and microcytic but moderate anemia with a low mean corpuscular volume and corpuscular diameter Chemical examination of the gastric juice is usually negative, but the chemical search for occult blood in the stools is usually positive (Weber reaction) Thus, this anemia appears to be posthemorrhagic. Radiological investigation is usually necessary to discover the hiatus hernia, either in simple radioscopic investigation or on series of gastric films and sometimes only in the Trendelenburg position If the hernia is discovered first, as it was in one fourth of the authors cases, the possibility of anemia must not be neglected If the anemia is known first, as it was in three-fourths of the cases the possibility of Biermer, macrocytic and refractory anemias must be eliminated. If microcytic and hypochromic anemia is found a latent diaphragmatic hernia of the stomach should be suspected and radiological examination requested Medical treatment consists of iron given orally or intravenously, but it only corrects the anemia and does not attack the cause. Surgery of the hernia is the only definitive treatment. Iron is used in the preoperative period and anticoagulants in the postoperative period because of the high incidence of venous thrombosis and pulmonary embolism in this syndrome

Vagotomy in Patients with Duodenal Ulcer R Jelinek Wien Klin Wchnschr 66 329-331 (May 14) 1954 (In German) [Vienna, Austria]

Of 136 patients who underwent vagotomy for nonbleeding duodenal ulcer between 1947 and 1951, one died of circulatory insufficiency caused by bronchopneumonia on the fourth postoperative day (an operative mortality rate of 0 73%) Of postoperative complications that occurred in only 14 patients, early vagus diarrhea in 7 patients was the most frequent In 129 of the 136 patients, follow-up examinations were performed one to six years after the operation Of the 129 patients, 77 had a vagotomy without gastrectomy, while 52 underwent combined vagotomy and gastrectomy Of the 77 patients, 42 (54 5%) had no complaints whatsoever (highly satisfactory results), 17 (22 07%) had occasional general complaints that did not affect the subjective well being (satisfactory results), and 8 (10 38%) had complaints without roentgenologic evidence of ulcer (fair results) In 10 (12 90%) therapy failed Of the 52 patients, 36 (69 23%) had highly satisfactory results, 10 (19 23%) satisfactory results, and 4 (7 69%) fair results In two (3 48%) therapy failed Thus results in patients who underwent combined vagotomy and gastrectomy were better than in those who submitted to vagotomy alone Despite the relatively short follow-up of from one to a maximum of six years, the authors consider vagotomy combined with gastrectomy a valuable procedure in the treatment of duodenal ulcer

Role of Surgery in the Therapy of Ulcerative Colitis J H Garlock and A S Lyons Gastroenterology 26 709-722 (May) 1954 [Baltimore]

Of 254 patients with ulcerative colitis treated by surgical measures between 1937 and 1952, 145 had universal colitis with involvement of the entire colon and rectum, 97 had right-sided colitis in which the rectum and often the sigmoid were free of disease, and 12 had left-sided colitis sparing the right and transverse portions of the colon The authors' concept of rational approach to the surgical treatment of ulcerative colitis was based on four premises 1 Treat the pathological complications of the disease, namely, pericolonic abscess, fistula, hemorrhage, and perforation 2 Save life in the occasional acutely toxemic patient who does not respond to conservative therapy 3 Remove the colon after study indicates that irreversible pathological changes have taken place 4 The development of polyposis makes colectomy obligatory because of the high incidence of carcinomatous change Under such circumstances, surgical treatment encompasses complete rehabilitation from chronic invalidism to a healthy and useful life In order to obtain a clear-cut picture of the value of surgical therapy for ulcerative colitis, all deaths from all causes, late or early, during or after hospitalization were included in tabulating mortality statistics The case mortality as opposed to the operative mortality was stressed in order to obtain the exact percentage probability of survival of the individual patient Of the 145 patients operated on for universal colitis, 26 died of all causes (a case mortality of 17 9%), 244 operations, including 125 ileostomies, 5 combined ileostomies and colectomies, 87 colectomies, and 27 abdominoperineal resections, were performed on these 145 patients, 18 of whom died of the operation (an operative mortality of 7 3%) Of the 97 patients operated on for right-sided colitis, 16 died of all causes (a case mortality of 16 4%), 195 operations, including 90 anastomoses, 3 anastomoses and colectomies in one stage, 79 colectomies, and 23 secondary ileostomies, were performed on the 97 patients, 16 of whom died of the operation (an operative mortality rate of 8 2%) Of the 12 patients operated on for left-sided colitis, 3 died of all causes (a case mortality of 25%), 23 operations, including 11 transverse colostomies, 11 colectomies and abdominoperineal resections, and one combined proximal colectomy and ileostomy, were performed on the 12 patients, 3 of whom died of the operation (an operative mortality of 13%) Thus of the total (254 patients), 45 died of all causes, a case mortality of 17 7%, 462 operations were performed on these 254 patients, 37 (7 9%) of whom died of the operation Ulcerative colitis is probably the most difficult disease of the gastrointestinal tract to treat, but the authors hope that their report will help to bring some degree of rationalization to the two extremes of early radical surgical excision and denial of surgical intervention in any case

Late Results in Treatment of 100 Cases of Acute Hematogenous Osteomyelitis J Trueta and J D Morgan Brit J Surg 41 449-457 (March) 1954 [Bristol, England]

Trueta and Morgan state that while at the onset of the penicillin era patients with acute hematogenous osteomyelitis were treated *with penicillin only*, Trueta and Agerholm in a report published in 1946 gave reasons for the reintroduction of early surgery in the treatment of acute hematogenous osteomyelitis, using it as a complement to penicillin This change was made when it was found that penicillin alone could not prevent the infection from becoming chronic This report analyzes the results of treatments by penicillin and surgery in 100 cases of acute hematogenous osteomyelitis Cases have been followed up for from two to eight years The following treatment was used On admission the patient was carefully examined by an experienced surgeon, and an estimate of the site and intensity of bony tenderness was made Blood was then removed for culture, determination of the sedimentation rate, and white blood cell count The affected part was immobilized and, if possible, elevated Penicillin treatment was begun with a dosage of 1,000,000 units per day, given either by continuous intramuscular drip or by repeated injections at three hour intervals. Twenty-four hours after admission, the same surgeon reexamined the patient, observing the amount of tenderness of the suspected area, the temperature as shown on the four hour chart, and the sedimentation rate Unless the tenderness had greatly decreased from that of the previous examination, the patient was prepared for operation The skin incision is made over the area of maximum tenderness, the periosteum is split, and the subperiosteal abscess is evacuated, several small perforations are made through the cortex with a drill to relieve tension The tourniquet is then removed, hemostasis is effected, penicillin powder, 200,000 units, is sprinkled into the wound, and the skin is sutured without drainage The limb is then immobilized Five days after the operation, the wound is reexamined and any hematoma is aspirated The stitches are removed on the 10th day, and a plaster cast is applied If the operation has succeeded in preventing involucrum formation, the bone will be particularly liable to fracture in the repair stage Penicillin treatment is continued for three weeks Immobilization is maintained for as long as signs of bone inflammation persist, after this the patient is allowed to walk or to use the limb according to the changes observed in the radiographs Complete bone healing has so far been obtained in 66 cases The quality of the results depends on the nature of the treatment and also on the age of the patient at the onset of infection Complete healing was more frequent when the patient was closer to the beginning than to the end of childhood Infants and adults present their own characteristic forms of the disease Prolonged follow-up with radiological control is essential

"Essential" and "Nonessential" Amino Acids in Urine of Severely Burned Patients G L Nardi J Clin Invest 33 847 854 (June) 1954 [New York]

The negative nitrogen balance of thermal trauma is recognized, but its meaning and significance to body metabolism are poorly understood Partition of urinary nitrogen may assist in interpreting the significance of nitrogen loss Some investigators have found an increase in nonprotein urinary nitrogen of burned patients This was chiefly due to undetermined nitrogen, the latter defined as the difference between the total nonprotein nitrogen and the sum of urea, uric acid, creatinine, and alpha amino nitrogen To analyze this partition further, Nardi studied the urinary amino acid excretion in five healthy subjects (laboratory personnel), in six severely burned patients, and in patients undergoing surgical operations He found an abnormal amino-aciduria consisting of excretion of "essential" amino acids not normally present in urine as well as increased quantities of 'nonessential' amino acids in the urines of severely burned or traumatized patients The qualitative and quantitative aspects of this amino-aciduria may be proportional to the severity of the trauma The amino acid excretion was influenced by, but not completely dependent on, the total urinary nitrogen Hyperactivity of the adrenal cortex as seen in Cushing's disease resulted in a moderate degree of amino-aciduria The latter effect was not reproduced by a daily maintenance dose of 30 mg. of cortisone after bilateral subtotal adrenalectomy This escape of amino acids is most likely due to a failure of tubular reabsorption The reason for the latter is not clear, but it may be due to some adrenal steroid other than cortisone, to an abnormal amino acid pattern presented to the tubule, or to some other factor

Mediastinal Parathyroid Adenoma C E. Catlow West J Surg. 62 352-353 (June) 1954 [Portland, Ore]

In the 50 year-old man whose case is reported, the history and the blood calcium values indicated hyperparathyroidism Surgical exploration of the neck disclosed no parathyroid adenoma It was decided that in a second operation the superior mediastinum should be explored However, on the fourth post-operative day basilar pneumonia developed, it was followed by cardiac decompensation and death on the fifth postoperative day Autopsy revealed a mass in the superior mediastinum, which on microscopic study showed the typical picture of a parathyroid adenoma This case emphasizes the necessity of exploring the mediastinum after fruitless neck exploration

A New Operation for Mitral Regurgitation J Hayward Australian & New Zealand J Surg. 23 257-267 (May) 1954 [Melbourne, Australia]

Hayward suggests that most cases of mitral disease can be provisionally diagnosed as mitral stenosis or mitral regurgitation Fused commissures are characteristic of typical mitral stenosis These cases are ideal for valvotomy Open or partly open commissures are typical of the valve of mitral regurgitation This second group he subdivides into group 2a, in which the function of the posterior cusp is permanently destroyed, and group 2b, in which the function of both cusps is permanently destroyed In addition to the two main groups, the author recognizes a small intermediate group with conical or elastic valve, in which stenosis and regurgitation may simultaneously be significant causes of circulatory trouble In this intermediate group valvotomy is likely to be disappointing Before describing his new operation for mitral regurgitation Hayward says that strips of pericardium, plastic substances, and other devices are being tried to relieve mitral regurgitation by attempting to produce either a solid buttress over the edge of or just under the posterior cusp, or a movable structure with valvular action below the orifice None has so far proved satisfactory In his new operation the left auricular appendage is invaginated through the mitral valve orifice and attached to the left ventricular wall under the posterior cusp It is suitable for cases belonging to group 2a The author presents the histories of two patients in whom this operation was employed, and he also lists advantages and limitations In an addendum to this paper he admits that both patients after immediate encouraging results deteriorated to a condition similar to, or perhaps slightly worse than, their preoperative state In each case the retrogression began gradually about six weeks after the operation The reason for its failure is not known with certainty It may be that the theoretical basis advanced for it is false, but the unmistakable initial improvement in both cases seems against this conclusion Perhaps it is more likely that the auricular appendage has failed to become fixed in the new position because endocardium has not fused with endocardium, and that it has therefore gradually escaped from the sutures and retracted out of the valve orifice Only postmortem examination will show if this has occurred, and both patients are still alive It is hoped that despite these failures this report may yet be a stepping stone on the difficult path to successful surgery for mitral regurgitation

Vagotomy and Gastroenterostomy in the Treatment of Duodenal Ulcer K R Trueman and D L. Kippen Canad. M A J 70 514-517 (May) 1954 [Montreal, Canada]

From May, 1946, when vagotomy in combination with posterior gastroenterostomy was first used at the Winnipeg Clinic, until December, 1951, 1,603 patients with duodenal ulcer were observed, and 377 (23%) of these submitted to surgery Partial gastric resection was done in 247, vagotomy plus gastroenterostomy in 79, vagotomy alone in 30, and vagotomy plus gastric resection in 21 cases The 79 patients on whom vagotomy plus gastroenterostomy was done were regarded as intractable, the majority being referred through the medical department for surgery The average duration of symptoms exceeded 12 years Hemorrhage occurred on one or more occasions in 35 patients, 19 of whom described hematemesis in addition to melena Perforation was reported in 15 cases, of whom eight had also bled Obstruction, as evidenced radiologically by narrowing of the duodenal channel, with marked gastric retention was present in 25 patients Fifty-one of the 79 patients were interviewed and examined at regular intervals after operation, but questionnaires were sent to all 79, and 72 of these were answered Of the remaining seven patients, three are known to have died and only four could not be traced Good results, which imply absence of ulcer recurrence or gastrointestinal symptoms of any consequence, return to normal weight, and ability to resume the previous occupation were obtained in 56 patients Fair results, that is, freedom from ulcer distress or recurrence, but the presence of slight or moderate side-effects of the operation such as bloating or diarrhea, were observed in seven patients The remaining nine patients had poor results, having symptoms indicative of recurrence, such as typical ulcer pain, hemorrhage, signs of a crater in the roentgenogram, severe side-effects, such as frequent vomiting or diarrhea, marked restriction of diet or regular use of antacids, and loss of weight and strength or inability to resume previous occupation Since those classed as fair were quite satisfactory from the standpoint of ulcer control, the diathesis of the duodenal ulcer appears to have been satisfactorily controlled in about 85% of the patients who had vagotomy

Mammary Cancer Treated by Bilateral Adrenalectomy L N Pyrah and F G Smiddy Lancet 1 1041-1047 (May 22) 1954 [London, England]

Twenty-two patients with advanced mammary carcinoma with metastases underwent bilateral adrenalectomy and bilateral gonadectomy One died soon after operation, and 8 either died from cancer or showed no improvement, 10 improved, and 5 of these had a major remission, with great improvement in the general health and with demonstrable regression of the primary growth (if still present) and its visible metastases, and with well-marked radiographic improvement of osseous and thoracic cancerous deposits It is not known whether these regressions are permanent. The authors' results confirm the work of Huggins and his co-workers that a favorable response sometimes follows bilateral adrenalectomy and oophorectomy Tumors having an alveolar or adenomatous structure appear to respond most favorably to this treatment, but it appears to be unwise to rely on a single biopsy before rejecting a case as unsuitable for adrenalectomy

Fat Embolism. A Clinical and Experimental Study of Mechanisms Involved R. L. Swank and G S Dugger Surg., Gynec & Obst. 98 641-652 (June) 1954 [Chicago]

Swank and Dugger say that they have become increasingly aware in recent years that cerebral fat embolism may occur early after injury and without pulmonary symptoms These patients may have cerebral concussion complicating fractures, or large area body mutilations, and may recover consciousness in a relatively short time, only to become stuporous again in a few hours The entire course of these events may take no longer than 6 to 12 hours These patients subsequently recover or die in 24 to 48 hours Gross brain lesions are frequently absent at autopsy, but in some cases fat emboli can be demonstrated particularly in the brain and lungs The authors cite two patients who had been injured in automobile accidents The manifestations of fat embolism were primarily cerebral in both cases In the first case progression to death was relatively fast, but in the second case a temporary stabilization occurred after early cerebral embolism, and this was later followed by pulmonary distress and manifestations of cerebral involvement and death These early manifestations of cerebral embolism are frequently overlooked because it is generally held that the clinical manifestations of fat embolism are delayed for 48 to 72 hours and are at first pulmonary Only after the development of shortness of breath, hemorrhagic sputum, and rales at the bases of the lungs is it thought that signs of cerebral embolism develop, namely excitement, stupor, convulsions, paralyses, and coma The authors present experiments on rabbits, which were carried out to explain the early onset of cerebral manifestations in some cases of fat embolism in which major fractures and head concussion or anesthesia coexist and to clarify some of the factors involved in the mobilization of the fat forming the emboli These experiments suggest that an important source of the fat emboli is circulating fat globules, which are held much of the time in the capillaries of the general and pulmonary circulation The early onset of cerebral symptoms of fat embolism is due probably to either shock and unconsciousness or to anesthesia, all of which presumably relax the vascular bed and allow the circulating fat plus the fat from the fractured bones to be washed through the pulmonary circulation to the brain *It is suggested that dark-field examination of whole blood, to determine the amount and sizes of the circulating fat globules in the blood, would be a useful adjunct to the early diagnosis of fat embolism*

NEUROLOGY & PSYCHIATRY

Relationship of Retrobulbar Neuritis to Multiple Sclerosis R G Taub and C W Rucker Am J Ophth **37** 494-497 (April) 1954 [Chicago]

An episode of acute retrobulbar neuritis is recognized as a possible primary symptom of multiple sclerosis A follow-up study was made in 1953 of patients with acute retrobulbar neuritis of undetermined origin who had been seen at the Mayo Clinic in the period 1937 to 1942, inclusive This gave an interval of 10 to 15 years after the episode of acute retrobulbar neuritis Twenty-five of 118 patients with acute retrobulbar neuritis could not be located, and 6 others had died before 10 rs had elapsed after their bout of retrobulbar neuritis, but none of these 6 had signs of multiple sclerosis been evident before death The 87 patients available for study were divided into three groups on the basis of age There were seven patients less than 20 years old, and multiple sclerosis developed in one of these Fifty-seven patients were between 20 and 44 years old, and in 26, or 45%, multiple sclerosis developed The time between the initial bout of retrobulbar neuritis and the development of symptoms of multiple sclerosis could be determined in 23 of the 26 cases and ranged between one and 14 years In more than half of the 23 cases, the onset of multiple sclerosis fell within the first five years Multiple sclerosis developed in only one of the 23 patients of the third group, who were more than 44 years old Thus the data indicated that, if a person between 20 and 44 years has an attack of retrobulbar neuritis, there is a 40 to 50% chance that multiple sclerosis will develop within 10 to 15 years In the cases in which retrobulbar neuritis occurs before the age of 20 years, the chance that multiple sclerosis will appear is less likely, and, when it occurs after the age of 44 years, the chance is remote

Pain in Paraplegia: Clinical Management and Surgical Treatment E H Botterell, J C Callaghan and A T Jousse Proc Roy Soc Med 47 281-288 (April) 1954 [London, England]

Spinal cord injury is followed by diminished or absent sensation below the level of the lesion Nevertheless, pain is frequently referred to the portion of the body rendered anesthetic Botterell and his associates investigated pain in 125 patients with traumatic paraplegia who were treated in a Veterans Affairs neurosurgical unit in Toronto, Canada A questionnaire was filled out by each, and 34 were interviewed personally Patients who suffer most severely describe their pain as "sharp," "a dull ache," or "vise-like" This is commonly superimposed on a background of burning pain The pain in paraplegia is referred to the dermatome corresponding to the injured segment of cord or the anesthetized area below it and is described by the patient on the basis of past experience of pain One hundred eighteen of the 125 patients with traumatic paraplegia complained of pain Twenty-nine of the 38 patients who had pain of troublesome severity were able to leave the hospital, although the severity of their pain interfered at times with sleep and appetite as well as with vocational and diversional activities. Some members of this group may yet require surgical treatment The incidence of severe pain is low in cervical injuries, higher in thoracic and complete conus or cauda lesions, and is commonest after partial destruction of the cauda equina and conus medullaris Patients may suffer severe pain at the moment of injury or as soon as consciousness is regained and are never free of pain thereafter In other cases, the onset of pain may be delayed for years Therefore, in those patients who are at present pain-free, central pain may develop Distention of the bladder by excessive residual urine, bladder spasms resulting from infection or calculi, and constipation producing distention of the large intestine were local conditions enhancing pain Successful treatment requires an understanding of the patient's emotional and psychological, as well as physical, requirements. If these needs are met, the majority of patients learn to live with their pain Nine patients had to be relieved by surgical means Bilateral spinothalamic tractotomy at the level of the first or second thoracic vertebra or higher proved most efficacious in relief of pain The histories of six patients who underwent this treatment and who have been followed for from two to eight years are reported One patient underwent bilateral frontal lobotomy and has been followed for five years He has retained the ability for planned thinking, a good sense of humor, and concern over the welfare of his family

Hypnotic Treatment of Phantom Sensation in 100 Amputees. C Cedercreutz. Acta chir scandinav **107** 158-162 (No 2-3) 1954 (In English) [Stockholm, Sweden]

Hypnotic sleep was given a therapeutic trial in 92 men and 8 women with phantom limb and accompanying phantom sensations after amputation Of the 100 patients, hypnosis with posthypnotic anesthesia (complete insensibility of the stump after awakening) was achieved in 19 and hypnosis without posthypnotic anesthesia in 26, while the remaining 55 patients could not be hypnotized Deep as well as light hypnosis affected the phantom sensation in the desired direction The number of hypnotic sessions required to eliminate the symptoms varied from one to 23 Freedom from symptoms or considerable improvement was obtained in all patients in whom posthypnotic anesthesia was achieved The patient's age, sex, the location of the phantom, or the period elapsed between the amputation and hypnotic treatment did not exert any effect on the results, which were favorable in 35 patients Twenty-two of these obtained complete relief from symptoms with disappearance of pain and phantom, pain subsided but the phantom did not vanish completely in 5, appreciable easing of pain and lasting changes in the shape of the phantom occurred in 8 Positive results thus were obtained in more than one-third of the patients Several of these patients are still free from symptoms three years after completion of the treatment Late relapses after hypnotic treatment occurred in 12 patients If the phantom responded quickly to treatment and subsided after two to three hypnotic sessions, long-lasting effects were mostly achieved If the phantom underwent regressive changes in the course of the treatment or if more than seven hypnotic sessions were required for its elimination, the incidence of relapse was high This also applies to those cases in which the phantom could not be eliminated entirely

Memory Disturbances in Third Ventricle Tumours. M Williams and J Pennybacker J Neurol, Neurosurg & Psychiat **17** 115-123 (May) 1954 [London, England]

One hundred eighty patients with verified intracranial lesions were interviewed by psychologists in a neurosurgical unit in order to ascertain whether there is any area of the brain the destruction of which is specifically associated with impairment of memory Four cases in which impairment of memory and site of lesion were clearly defined and well localized are described in detail The incidence of memory disturbances in tumors of the third ventricle was compared with that in other localized intracerebral tumors Patients with obvious and clear-cut defects of memory were examined for the commonest site of lesion All analyses support the conclusion that memory impairment is most common and specific when the area surrounding the floor and walls of the third ventricle is disturbed Lesions further forward, in the frontal area, often result in the patients not bothering to use their memories, while lesions of a cerebral hemisphere may cause loss of memory for particular skills, but the patients remain capable of remembering events, lesions of the posterior fossa may make the patients retarded and depressed and unable to think of remembering With lesions in and around the third ventricle, however, the patients frequently retain good personality and intellect but show gross defects of memory The loss is not for particular events, nor for immediate appreciation of impressions, it is rather for their normal endurance and retention Apart from the site of the lesion, however, it is possible that other factors may be involved in determining the memory disturbance

Results of Radioactive Isotope Encephalography in Patients with Verified Intracranial Tumors. L. Davis and T Craigmile J Neurosurg. 11 262-267 (May) 1954 [Springfield, Ill.]

The results of isotope encephalography, performed after the administration of radioactive diiodofluorescein or radioactive sodium iodide in 200 patients with verified primary or metastatic intracranial tumors, are reviewed Primary intracranial tumors were found in 174 patients, while metastatic neoplastic lesions were encountered in 26 patients The original end-window Geiger-Mueller counter was used in the majority of the studies, but recently a more nearly accurate scintillation counter was used No attempt was made to classify the results on the basis of the counting device used Analysis of these results reveals a slightly higher incidence of accurate findings after the use of diiodofluorescein In patients with primary intracranial tumors, the use of this substance resulted in accurate localization of the later verified lesion in 61 6% of the patients examined The use of radioactive sodium iodide gave a precise indication of the site of the neoplasm in 52 8% of the patients examined by that method In 21 patients with metastatic intracranial tumors, studies following administration of diiodofluorescein showed evidence of the presence of an organic lesion in about 76% Precise localization of a solitary metastatic nodule was obtained in 47 6% of the patients examined. The results of the examination following injection of radioactive sodium iodide in five patients with metastatic lesions were far from encouraging One person with a solitary nodule displayed a generalized increase in radioactivity without evidence of focal concentration All others similarly examined showed no abnormalities in their tracings

Nocardiosis of the Central Nervous System E G Krueger, L. Norsa, M Kenney and P A. Price J Neurosurg. 11 226-233 (May) 1954 [Springfield, Ill]

A case of pulmonary nocardiosis with development of a metastatic cerebral abscess is reported The patient, a 42-year-old Negro man, underwent successful excision of a left frontal abscess and received penicillin and chlortetracycline (Aureomycin) in the postoperative course Complete remission ensued and has lasted 15 months after surgery and 13 months after discontinuance of antibiotic therapy Tests run on the Nocardia isolated from the abscess showed the organism to be sensitive to chlortetracycline This is the 20th case of nocardiosis of the central nervous system to be reported The patients range in age from 20 to 65 years, and men are affected oftener than women In general, neurological symptoms begin several months after the onset of extraneural manifestations such as cough or subcutaneous abscesses Clinically, no distinct entity exists, neurological signs are related to localization within the central nervous system and to increased intracranial pressure Pathologically, focal abscesses are much commoner than primary meningitis In almost all the autopsies there were additional visceral lesions predominantly in the lungs and the subcutaneous tissues The authors believe that, in a case of nocardiosis with a cerebral abscess, early surgical removal accompanied by intensive administration of sulfonamide drugs and of broad spectrum antibiotics is the treatment of choice

On the Inheritance of Epilepsy. O P Kimball. Wisconsin M J 53 271-276 (May) 1954 [Madison, Wis]

Kimball made his studies mostly at the White Special School for Epilepsy in Detroit, the first school of its type in the United States, which was established in 1935 He also investigated cases in his private practice. He explains his point of view on the basis of the history of a family, one child of which attended the aforementioned school It was learned that his mother had seizures during childhood and adolescence, but when she was 17 the seizures stopped She had eight living children, and only one had seizures The electroencephalograms of the father and three children were normal The mother and five children had electroencephalographic records indicative of epilepsy, yet only the one child had seizures The author applies the term "potential epilepsy' to the other four children who had the genetic potential" for epilepsy, but not clinical seizures When environmental changes occur in the person with potential epilepsy clinical seizures may start, and potential epilepsy may become real epilepsy The author feels that this combination of genetics and environment is responsible for the existing confusion That epilepsy is hereditary is shown by the high degree of concordance in monozygotic twins and by the fact that the incidence of epilepsy among the relatives of epileptics decreases as the relationship becomes more distant. The analysis of 520 sibships in which at least one sib was epileptic is the main purpose of this report. Every history was taken, and the follow-up notes were made by the author through a continuous study for over 20 years Before the special school in Detroit opened, the author found what every student of epilepsy has found in attempting to obtain family histories, either the family did not know, or was unwilling to admit an inherited tendency to epilepsy Repeated attempts over a period of years frequently produced an accurate history The attitude of the parents changed when they learned that a special school was ready to accept their child, transport him to and from school, care for him, provide adequate educational facilities, and give medical treatment. In a table that lists the results of investigations on 294 families in which one parent was epileptic, and in which there was a total of 1,070 children, there were 399 epileptic children (37.3%) In 222 families, in which neither parent was epileptic, but in which epilepsy was in the families, there were 772 children, of whom 274 had epilepsy (35 5%) In four families with 25 children, in which both parents were epileptic, 20 or 80% of the children were epileptic The genealogy of several families with epilepsy is discussed, one, going back to 1630, showed the occurrence of epilepsy in almost every generation, but there had never been a case of epilepsy in childhood, convulsions always started at middle life, usually in the early 40 s The women thought that their epilepsy was due to menopausal change The author s patient with this type of epilepsy was 42 years old when nocturnal convulsions started What is to be the answer when a person with epilepsy seeks advice about marriage and having children? If the diagnosis is brain injury with convulsions, then there is no reason for worry over heredity However, if the diagnosis is genetic epilepsy, he should be told that his disease could be, and probably would be, passed on to his children In fact, more than one third of children of epilepsy patients are themselves affected Even if the children are not so afflicted, the grandchildren might be

Serology of Multiple Sclerosis. E. Frick. Klin Wchnschr 32 450-452 (May) 1954 (In German) [Berlin, Germany]

Frick points out that Sachs and Steiner reported on serologic studies in multiple sclerosis in 1934 using as antigen an alcoholic extract from the brain of patients who had died of multiple sclerosis They performed complement fixation tests in 289 cases and obtained positive reactions in 41% They had assumed that this serologic reaction represented an antibody function against an infectious organism or against a pathological substance in the central nervous system These investigations were forgotten until Frick resumed the studies in 1951, closely adhering to the method employed by Sachs and Steiner Roemer, Schrader, and Schild reported two recent studies yielding positive results in about 50% of 60 patients with clinically established multiple sclerosis, particularly in those with acute exacerbations In order to establish the specificity of the reaction they examined the serums of 159 patients with other neurological disorders as well as of 269 patients with internal diseases In the patients with neurological diseases 3 1% showed positive reactions and of those with internal disorders nearly 10%, but in the latter the serum lability reaction was also usually positive Frick recently made the test on 51 patients with multiple sclerosis The result was positive in 25 of these patients, doubtful in 5 and negative in 21 Positive reactions were more frequent in the acute than in the chronic forms, but positive results were observed also when acute exacerbations appeared in chronic cases The author used as antigens formaldehyde-fixed cerebral and spinal tissues of patients with multiple sclerosis, in whom the diagnosis had been established by histological examination The technique employed was that of the complement-fixation method Six antigenic extracts yielded largely identical results Frick found that antigen prepared from normal brain tissue produced equally good results He feels that the final evaluation of the serologic findings is impossible as long as the antigen has not been chemically analyzed The suggestion of Roemer, Schrader, and Schild that the antigen is a lipoid or a lipoprotein is shared by Frick He doubts, however, that it is a substance that occurs exclusively in the brain of patients with polysclerosis, and feels that as yet the serologic reaction cannot be employed to solve etiological or pathogenetic problems of multiple sclerosis His preliminary conclusion is that the described method permits the demonstration of antibodies in patients with multiple sclerosis and that the presence of these antibodies depends on the state of activity of the disease process By inactivating the serums at 60 C (140 F) the specificity of the results could be greatly improved and lability reactions simulating positive results could be excluded

GYNECOLOGY & OBSTETRICS

rbidity in Vaginal Hysterectomy J H Pratt and Q Scher- a Am J Obst & Gynec 67 1323-1337 (June) 1954 [St Louis]

A four year study was made of 514 patients undergoing vaginal hysterectomies with or without vaginal repair The distribution of patients was comparable in the four years with regard to number, age, and association of repair, but the preoperative preparatory routine was changed each year and the various methods compared in relation to postoperative morbidity The criterion for morbidity was temperature elevation above 100 4 F on any two days following the day of operation, the authors realize this is far from an ideal standard, but it is objective and has been used in other similar studies The intravaginal use of a suppository containing 100,000 units of penicillin the night before operation was the most effective means of reducing morbidity of any of the methods tried The introduction of 5 gm of sulfathiazole into the peritoneal cavity was helpful but the increase in morbidity after the elimination of this procedure from the routine was not marked In patients on whom hysterectomy and vaginal repair were done, the combined use of penicillin and sulfathiazole reduced the morbidity the most, this effect was primarily on patients 50 years old or less pHisoderm, a detergent cream composed of sulfonated ether, petroleum, lactic acid, and wool fat cholesterols, was helpful in reducing morbidity but not so effective as the vaginal suppositories of penicillin The number of serious complications in this series was encouragingly low, however, five patients had to be operated on again within a few hours because of retroperitoneal hemorrhage There were also 10 patients with vaginal bleeding of mild to moderate degree and 11 others with hematomas of the vaginal vault or the deep pelvic spaces There were two cases of thrombophlebitis of the deep veins and three of the superficial veins and one of questionable thrombophlebitis No cases of allergy were encountered in the year in which the routine use of sulfathiazole was discontinued Urinary retention was numerically the biggest single problem encountered in this series of patients, but, although it caused additional days in the hospital, few elevations in temperature could be blamed on it alone The variation in vaginal preparation had no effect whatever on the stay in the hospital Patients with vaginal repairs averaged three days longer in the hospital than those without Patients who had morbidity were one day longer in the hospital than patients without Hospital stay averaged one or two days longer for older patients than for younger However, morbidity was less frequent among the women past 60 years of age These patients usually had vaginal repair but their uteri tended to be small and atrophic Loss of blood was less in the older women, the operation went faster, and the anesthetics were of shorter duration All of these things are factors in lowering morbidity

Removal of 184 Pound Ovarian Tumor, and Observations Regarding Splanchnic Shock D H. Eames Jr Am J Obst & Gynec 67 1358-1364 (June) 1954 [St Louis]

The removal of a 184 lb (83.5 kg.) serous and pseudomucinous cystadenocarcinoma of the left ovary of a 44-year-old woman, the 13th largest ovarian tumor reported in the literature, gave the author a chance to observe the effect of sudden release of acute intra-abdominal pressure It was decided to remove the tumor whole, because tapping and draining represents a danger of allowing malignant cells to escape within the peritoneum The operation lasted three hours The lowest depression of the patient's blood pressure was to 78/48 mm. Hg and occurred during the time she was being moved from the left lateral to the supine position for closure of the incision This is not an unusual reaction and was reversed on cessation of manipulation. The author is of the opinion that splanchnic shock caused by removal of large abdominal tumors is by no means constant in its appearance and is rather uncommon When it does appear, it is usually manifested some hours after the release in pressure, as a rule 4 to 24 hours later, and the use of "slow" decompression is poor prophylaxis Instead, the most logical course of action seems to be the removal intact of such large tumors in order to face the possibilities of reaction with the patient in optimum physical state With the use of whole blood and modern drugs this possibility has become secondary to the evils accompanying the drainage of any large ovarian tumor, and size alone should no longer be considered an indication for drainage rather than intact removal

Neurogenesis in Ovarian Tumor H Selinke and E Pumares Mogimes An Fac méd Montevideo 38 337-342 (Sept-Oct) 1953 (In Spanish) [Montevideo, Uruguay]

A woman 32 years old had a simple ovarian teratoma removed The operation was followed by development of intraperitoneal metastases and cachexia At the end of six months after the operation the abdomen of the patient was larger than that of a woman at full-term pregnancy In a second operation multiple metastases were removed from the peritoneal cavity The removed tumors were encapsulated, pedunculated, and independent from one another They contained typical teratoma tissue and a great number of large masses of cerebroid tissue, enclosed in a fibrous meningeal-like membrane. Histological preparations of the cerebroid masses consisted of lobules lined with ectodermal epithelium, neuroblasts in different stages of differentiation and adult neurons, either normal or in a process of degeneration The stage of development of the nervous tissues was clearly identified with the stains of Bielschowsky and of Rio Hortega The patient died. A necropsy was not permitted The authors believe that the histogenesis of neural tissue in teratoma depends on the intratumoral presence of archenteron-like structures that function as archenteron functions in normal embryos The former in teratoma and the latter in normal embryos induce differentiation of tissue with consequent formation and development of nervous tissue The tubules lined with ectodermal epithelium observed by the authors in histological preparations of cerebroid tissues appear to have been the archenteron like structures in the case reported

PEDIATRICS

Studies of Serum Electrolyte Changes During Exchange Transfusion G Miller, A B McCoord, H A Joos and S W Clausen Pediatrics 13 412-418 (May) 1954 [Springfield, Ill.]

Eight infants with erythroblastosis fetalis were treated by exchange transfusion within the first 36 hours of life and were studied in relation to serum electrolyte changes It was established by tests that hyperkalemia was induced in two of these patients and aggravated in one in whom it was already present There were no clinical signs or symptoms of hyperkalemia The elevated plasma potassium content of citrated whole blood following prolonged storage may produce hyperkalemia in some infants It is suggested that hyperkalemia and hypocalcemia may coexist in some of these babies during exchange transfusion This potential risk can and should be minimized by the use of relatively fresh blood and the judicious administration of calcium during replacement transfusion with citrated whole blood

Viral Hepatitis in Early Infancy Report of Three Fatal Cases in Siblings Simulating Biliary Atresia R. B Scott, W Wilkins and A Kessler Pediatrics 13 447-453 (May) 1954 [Springfield, Ill]

Three fatal cases of hepatitis with jaundice are reported in siblings with onset at ages of four weeks, one week, and four months and death at three months, four months, and nine months, respectively In these cases, the disease simulated the clinical picture of biliary atresia Exploratory laparotomy, performed in all three, revealed biliary atresia in only one, cholecystoduodenostomy was performed and failed to ameliorate the condition Microscopic findings in postmortem sections of the liver were consistent with a diagnosis of viral hepatitis From the data available, it appeared to be of the homologous serum type The mother and two living siblings exhibited laboratory evidence of liver damage Failure to include a consideration of congenital viral hepatitis in the differential diagnosis of icterus in the very young infant may have serious consequences, since these patients do not withstand surgical procedures very well The authors feel that the deaths of their three patients, although unavoidable, were perhaps hastened by surgery

Evaluation of Large Doses of Cortisone in First Attacks of Rheumatic Carditis E T Heffer, R D Turin, S R Slater, and I G Kroop J Pediat 44 630-639 (June) 1954 [St Louis]

Nineteen children in their first attacks of rheumatic fever with carditis were treated with cortisone in larger doses than those used by the International Cooperative Study The initial total daily dose of cortisone was between 200 and 300 mg given in four divided oral doses This dose was usually continued for at least two weeks or even longer, until the clinical and laboratory findings indicated maximal suppression of the disease It was only then that the dose was reduced gradually On the average 200 to 300 mg of cortisone was given for two weeks, 150 mg for one to two weeks, 100 mg for one week, and 50 mg for one week Dosage was individualized according to the severity of the disease and its course Before treatment was started, all 19 patients had significant organic murmurs, 11 had cardiac enlargement as demonstrated by fluoroscopy and roentgenogram Fifteen patients had abnormal electrocardiographic findings, and three had heart failure Of the 19 patients, 13 with monocyclic attacks of rheumatic fever had no residual cardiac involvement after treatment 10 of these were treated within the first two weeks of their illness Six patients had residual systolic murmurs after cortisone therapy These patients were treated late in the disease and either had a long protracted low grade activity or a polycyclic course The immediate suppressive effect of cortisone on symptoms of carditis was remarkable In three severely ill children, cortisone therapy was considered lifesaving. In one of these patients salicylates had been ineffective Gallop rhythm usually disappeared within four days, and tachycardia responded to treatment within a week, except in those patients with carditis of several weeks duration before therapy was begun In several patients, cortisone produced sinus bradycardia and arrhythmia with nodal escape The prolonged P-R interval usually returned to normal within two weeks The friction rub that was present in two patients before the treatment disappeared within four days No new murmurs developed in the 19 patients There were no complications despite the high total dosage of cortisone employed The Cushing habitus with moonface, obesity, and striae developed in all patients Mild facial hirsutism and acne never necessitated cessation of treatment Elevation of the blood sugar and glycosuria were not observed Hepatomegaly observed in the first week or two probably represented congestive failure induced by an endogenous water shift secondary to cortisone therapy Hepatomegaly, which was observed later, probably represented fatty infiltration of the liver In both cases, there was no contraindication to continued cortisone therapy The patient with a monocyclic attack of rheumatic fever has a better chance of escaping cardiac damage if he is adequately treated early in the disease The number of cases reported on is too small for drawing definite conclusions, but the trend shown warrants the use of larger doses of cortisone given early in the disease and continued for a long enough period In this way it may be possible to prevent residual valvular damage in a monocyclic attack. The authors experience also indicates that cortisone in adequate dosage may be more effective than salicylates in controlling carditis

Comparative Study of Children with Bone and Joint Tuberculosis Treated With and Without Tuberculostatic Drugs M Modena. Wien med. Wchnschr 104 359-360 (May 1) 1954 (In German) [Vienna, Austria]

The course of bone and joint tuberculosis in 363 children treated by the old methods of sun irradiation and general measures was compared with that in 115 children between the ages of 1 and 12 years treated with streptomycin and *p*-aminosalicylic acid Dihydrostreptomycin was preferred because of its lesser toxicity It was given in doses of 0 33 gm daily to children between the ages of 1 and 6 to 7 years, and in doses of 0 5 gm daily to children between the ages of 7 and 12 years The total maximum dose was 80 gm , the average total dose varied from 30 to 40 gm The treatment scheme varied according to the location and severity of the lesion There were only three patients who were resistant to streptomycin *p*-Aminosalicylic acid was given in doses of 0 2 gm per kilogram of body weight, and the average total dose was 300 gm The average duration of the disease was shortened by the treatment with these drugs Attempts were made at reducing the application of plaster of Paris casts to a minimum The patients were confined to bed for 6 to 18 months on the average and then were allowed to get up with a supporting apparatus of the type of Thomas splint Modena considers it more important to relieve the lower extremities of the body weight, than to immobilize them with plaster casts Joint function with resulting active mobility, varying from one-third of normal to completely normal, was obtained in 88 4% of the patients with tuberculosis of the hip joint and of the knee joint The response of the tuberculous process of the bone to the antibiotic treatment was slowest in patients with spondylitis In the most favorable cases, arrest of the disease occurred about the sixth month, and the first signs of repair were observed between the 10th and 12th months Plaster corsets should be used less frequently, since the most satisfactory results were obtained exclusively with rest cures with Bradford frames Of six patients with tuberculosis of the foot treated with antibiotics, five obtained two-thirds of their normal mobility and ankylosis occurred in one. Satisfactory healing occurred within 12 months in two patients with tuberculous sacrocoxitis The earlier the diagnosis, the better were the results Although tubercle bacilli may not be demonstrated in the early stage of the disease, a therapeutic trial with the tuberculostatic drugs should not be delayed in the presence of a relationship between history and clinical findings

DERMATOLOGY

Tinea Capitis Caused by *Microsporum Canis* Report of an Outbreak in Dunedin Institution M J Marples and E N Chapman New Zealand M J 53 158-162 (April) 1954 [Wellington New Zealand]

Marples and Chapman describe an outbreak of ringworm of the scalp due to Microsporum canis in the Dunedin Receiving Home of wards of the state Eight of the 10 resident children were found to be infected Examination of 92 school contacts failed to demonstrate any transmission of infection The origin of the outbreak could not be traced The institution did not own a cat, and an elderly cat belonging to a neighbor showed no evidence of infection There were a large number of cats, including kittens, living on the grounds of an adjacent empty house These cats had become very wild and could not be collected for examination They had the habit of sleeping and sunning themselves in the uncovered sandpit belonging to the institution M canis characteristically causes small family outbreaks but not widespread epidemics of ringworm The transfer appears to be domiciliary and requires close contact When outbreaks occur in families whose cat or dog can be shown to be infected, it is not possible to discover which of the individual infections represent animal to child or child to child transmissions In the outbreak described here there was considerable evidence that some child to child transmissions of infection occurred within the institution It is difficult to believe that all the children concerned were directly infected from cat hairs, since they did not play with the semiwild cats and had not actually handled any cat that could be demonstrated as infected Furthermore, although infections in all but two of the children were observed within a few days of one another, there were indications at the initial examination with Wood s light that the lesions were not all at the same stage of evolution The majority of scalp ringworms in New Zealand are caused by the dermatophyte M canis This fungus is primarily adapted to parasitic life on domestic pets Although it can and does infect humans, its virulence is decreased in man Lesions of the scalp respond to treatment with topical applications and may clear up spontaneously even before puberty Further, child to child transmissions are not very common, the organism losing its invasiveness after a few human passages The authors feel that the regulations restricting the school attendance of children with scalp ringworm should be reconsidered, since the close contact necessary for human transmission of infection need not occur in school The described outbreak shows that, although within the institution child to child transmissions did occur, no transfer of infection to school contacts could be demonstrated

Isoniazid in Treatment of Lepromatous Leprosy I Sigall M Arq mineir leprol **13** 187-194 (July) 1953 (In Spanish) [Minas Gerais, Brazil]

This is a preliminary report on the results of isoniazid therapy in 18 patients with leprosy of the lepromatous type The initial dose of 200 mg was increased at weekly intervals up to a daily dose of 800 or 900 mg The total dose varied between 44 and 144 gm in 4 to 10 months The general condition and the appetite of the patients showed improvement early in the course of the treatment The number of bacilli in the skin and in the nasal mucosa diminished or disappeared Marked clinical improvement was observed Infiltration was controlled, maculas disappeared, the volume of the nodules diminished, erythema subsided, and acute extensive recurrences did not reappear Satisfactory results from isoniazid alone were obtained in two patients who received the drug for five and eight and one-half months, respectively In four patients the bacilli became resistant within six or eight months in the course of administration of isoniazid alone Isoniazid combined with sulfonamides for an additional period of three to five and one-half months gave satisfactory results The best results of isoniazid treatment were observed in nine patients who received the drug in combination with sulfonamides from the beginning to the end of the treatment, between eight and nine and one-half months Isoniazid combined with streptomycin was given to three patients for three months It failed The combined treatment with isoniazid and sulfonamides for an additional period of seven months gave satisfactory results The author concludes that isoniazid is of great therapeutic value in lepromatous leprosy No other drug causes the bacilli in the nasal mucosa and in the skin to disappear so quickly or to diminish so rapidly No other drug produces a clinical improvement in so short a period of time as isoniazid, alone or combined with sulfonamides

A Study of Tinea Capitis W N C Fraser and A H Hackett New Zealand M J 53 162-165 (April) 1954 [Wellington, New Zealand]

A survey of school children in the Auckland metropolitan area revealed that the incidence of tinea capitis is uncommon in the summer months, there being only one case found by Wood's filtered light in a sample of 500 children between the ages of 2 and 12 years The virulence of ringworm appears to vary somewhat from person to person even though infected from the same animal, and such lesions under the same treatment take varying times to clear up It appears that most infections are transmitted from animal to human beings, but only rarely and less often if precautions are taken has it been proved to be transmitted from person to person Living conditions appear to play little part in the transmission of infection, unless animals that may become infected and transmit infection to their human guardians are kept in the family It appears that both good and poor homes are infected In the opinion of these authors it is not necessary to keep the child from school, it appears that little or no infection is propagated among school children Teachers and parents should be made aware of this fact, as valuable schooling is often lost when the child can least afford it

Progressive Scleroderma and Its Roentgenologic Aspects E Nagele and R Pfister Klin Wchnschr **32** 452-455 (May) 1954 (In German) [Berlin, Germany]

Scleroderma appears in a diffuse or progressive form, a localized or circumscribed form, and as sclerema neonatorum Nagele and Pfister observed eight cases of the diffuse progressive form The skin changes begin with a doughy edematous swelling, which becomes transformed into an indurative and then into a sclerotic atrophic stage The skin becomes tensely drawn, the face mask-like, and fingers and toes stiff and claw-like The sclerotic changes involve not only the skin but various organs as well, diffuse progressive scleroderma is a systemic disease The cause has not been fully explained, but it is assumed that a central disturbance of the sympathetic regulation is the basic factor, which, by way of defective nervous, incretory, and circulatory functions, leads to metabolic changes in the connective tissue Degeneration and dissolution of the elastic fibers is followed by their replacement with collagenous connective tissue The increase in the thickness of the collagen fibers produces the peculiar hardening of the tissue The intimal tissue of the small arteries and arterioles becomes saturated with coagulated protein and proliferate Symptoms suggesting a relation to Raynaud's disease are frequent Roentgenoscopy may reveal reticulation of both lungs, which is a fibrosis produced by an increase in connective tissue The resulting dyspnea was formerly ascribed to induration of the skin and musculature of the thorax The authors cite the case of a woman with severe dyspnea and moderate impairment of swallowing The differential diagnosis proved difficult Repeated searches for tubercle bacilli gave negative results Boeck's sarcoid had been thought of on account of wing-like shadows in the lungs, but sclerodermal changes in the hand skeleton and particularly in the skin and the location of the pulmonary shadows in the lower lobes identified the disorder as scleroderma In the heart, muscular tissue is replaced by fibrous scar tissue Roentgenoscopy may reveal a normal heart, but frequently there is hypertrophy chiefly of the right side, most likely the result of pulmonary changes The digestive tract is frequently involved, particularly the esophagus, in which muscle becomes replaced by connective tissue, and the mucous membrane may become involved secondarily Difficulty in swallowing is observed in about 50% of the cases, and roentgenoscopy discloses retarded passage through the esophagus with atony and reduced peristalsis Roentgenologic study of stomach and intestine also discloses atony and reduced peristalsis The most important roentgenologic changes of scleroderma are those in the bones The patients with symptoms resembling Raynaud's disease often show osteolytic changes in the terminal phalanges of the fingers, as well as osteoporosis Finally, there may appear the characteristic triad volar flexion of fingers, progressive atrophy of the terminal phalanges, and calcium deposits in the finger tips Calcium deposits are found also in other parts of the body

UROLOGY

Peyronie's Disease. A New Approach G H Teasley J Urol 71 611-614 (May) 1954 [Baltimore]

Teasley discusses a new method of treating for Peyronie's disease (induration of corpora cavernosa), which he first reported in 1952 and which now has been tried in 24 cases The skin is cleansed with soap and water and a disinfectant The skin and subcutaneous tissue, down to and around the plaque, are infiltrated with 0 5% procaine solution A solution of 25 mg of cortisone, dissolved in isotonic sodium chloride solution containing 0 25% of procaine crystals, is prepared This will make approximately 1.25 to 1 5 cc The solution is injected directly into the plaque It is quite difficult to inject, and unless a Luer-Lok syringe is used the needle will be blown off the syringe Injections are repeated at intervals of one week The author used six injections before disappearance of the plaque When the needle can be felt to scrape against the hard plaque and definitely enter its substance so that injection is particularly difficult, the results are best Injection about the plaque will produce no complete resolution of the fibrous process A moderate soreness between injections has been the only complaint There is no reason to assume that any harmful systemic effect will be caused by cortisone in such a small dosage Treatment can be repeated if symptoms return

Renal Function After Complete Bilateral Ureteral Obstruction Following Colporrhaphy B R. Harrow Am J Surg. 87 842-850 (June) 1954 [New York]

Complete bilateral ureteral obstruction occurred a few months after vaginal hysterectomy and vaginal plastic operation in a 56-year-old woman with a recurrent third degree cystocele with a moderate vaginal collapse After 12 hours of anuria cystoscopy did not reveal any ureteral outflow, and catheters could be inserted no more than 1 cm into both ureteral orifices A 20% solution of methiodal (Skiodan) sodium that was injected through an occlusion catheter outlined sharp kinks of both lower ureters The patient's only complaint was bilateral lower abdominal pain After 72 hours without urine reaching the bladder, a right nephrostomy was performed resulting in drainage of 2,000 to 3,000 cc of urine during each of the next two days The left ureter remained completely occluded The patient improved rapidly An intravenous pyelogram performed after 13 days with the right nephrostomy tube clamped demonstrated function in the completely blocked hydronephrotic left kidney On the 23rd day the patient began to void large amounts of urine presumably from relief of the left ureteral blockage, since the right nephrostomy catheter continued to drain larger amounts of urine The patient was discharged 36 days after the original plastic surgery, voiding all the urine with the nephrostomy tube constantly clamped On the 47th postoperative day she was readmitted with fever, chills, left flank pain, and a nonfunctioning left kidney on intravenous pyelography A left nephrostomy was performed The nephrostomy tubes were removed on the 68th day, and the patient was discharged 74 days after the colporrhaphy with both wounds healed Afterward the patient had no urinary symptoms and remained in good health This report is on the 19th patient in the English literature with complete ureteral obstruction after gynecologic surgery The patient also represents the fourth such occurrence after an anterior colporrhaphy It is the fourth proved case of complete ureteral obstruction due to kinking and is the only reported case in which roentgenograms demonstrated the kinks The most interesting information obtained was that visualization of iodide occurred in a kidney completely obstructed for 13 days, follow-up urograms after four months revealed a normal pyelogram From a discussion of the experimental and clinical data of renal function and the low secretory pressure continuing in hydronephrosis during complete obstruction, the conclusion was drawn that the main mechanism is glomerular filtration and pelvic and calyceal urothelium reabsorption The author's case emphasized that kinking alone can produce a complete obstruction that may last for several weeks and thus requires early surgical intervention to relieve the anuria. The rapidity of the hydronephrosis and hydroureter with complete occlusion, the limited extent of the hydronephrosis, the slow reabsorption from the lower segment of the ureter and the lack of flank pain were all demonstrated in the author's patient The use of the occlusion catheter is invaluable in making an accurate diagnosis in bilateral ureteral obstruction Bilateral nephrostomy or intubated ureterostomy rather than deligation is recommended as the treatment of choice even after vaginal surgery Insertion of ureteral catheters in secondary colporrhaphy or in anticipated difficult abdominal surgery is strongly advised as a preventive measure

Alkalosis as Cause of Prerenal Azotemia. Review of Literature with Five Case Reports. M K. Dill and A. B Richter J Indiana M A 47 494-502 (May) 1954 [Indianapolis]

When nitrogen retention occurs in kidney failure due to disease processes elsewhere in the body, it is referred to as prerenal azotemia. This does not mean that the kidneys are entirely normal Prerenal azotemia indicates that the primary disease is outside the kidneys This disorder causes functional or even structural changes in the kidneys with renal impairment. Prerenal azotemia is common in prolonged vomiting, as in intestinal obstruction and pernicious vomiting of pregnancy, severe prolonged diarrhea, acute infections, congestive heart failure, diabetic coma, Addisonian crisis, alkalosis, and shock This paper deals with alkalosis as a cause of prerenal azotemia. Five cases of renal impairment or prerenal azotemia caused by alkalosis are presented Alkalosis may result from the intensive or injudicious oral use of alkalis, such as sodium bicarbonate and calcium carbonate, from vomiting, as in high intestinal obstruction, and from removal of chloride by continuous gastric aspiration Impairment of renal function with azotemia, creatinemia, hyponatremia, hypopotassemia, hypochloremia, lowered renal function tests, etc., often occurs This renal impairment is reversible if the alkalosis is promptly treated with infusions of saline solution Potassium chloride may be necessary If it is not corrected in severe cases, death may result The theories advanced in the literature with regard to the cause of renal impairment are reviewed The authors stress the need for alertness with regard to this serious condition, they feel that it should be oftener emphasized in clinical medicine

Cancer of the Prostate C E. Burford and E H. Burford Missouri Med 51 443-445 (June) 1954 [St. Louis]

Four hundred eighty men between the ages of 40 and 96 with carcinoma of the prostate were admitted to the department of urology of the St Louis University School of Medicine One hundred fifty-five were treated before 1941, i e, before the neutralizing effect of estrogen was discovered, and 325 were treated after 1941 The operative mortality for the entire series of 480 patients was 2.5% Of the 155 patients, 82 were operated on without positive pathological findings on palpation, and 73 with positive findings Eleven (13%) survived for 5 years, 6 (7%) survived for 10 years, and 4 died within 6 weeks after the operation (an operative mortality rate of 5%) Of the 73 23 (32%) survived for 5 years, 3 (4%) for 10 years and 3 died within 6 weeks after the operation (an operative mortality rate of 4%) Of the 325 patients in whom surgical procedures were employed combined with the use of estrogen, 175 did not have positive pathological findings on palpation and 150 did with metastases in 38 (25%) Of the 175, 124 (71%) survived for 5 years, 42 (24%) survived for 10 years, and only 1 died within 6 weeks after the surgical intervention (an operative mortality rate of 1%) Of the 150 patients, 90 (60%) survived for 5 years, 29 (19%) survived for 10 years, and 3 (2%) died within 6 weeks after the surgical intervention (an operative mortality rate of 2%). Endocrine therapy has completely changed the treatment of carcinoma of the prostate. Patients with carcinoma of the prostate, regardless of the delay in diagnosis, can be relieved of symptoms with greater safety. Routine rectal examinations at least annually of all men aged 40 years or older offers the best chance for early diagnosis and prolonged survival. Even in advanced cases, a 60% five year survival rate may be anticipated. Testicular evisceration combined with administration of estrogen is the best method of management of carcinoma of the prostate, it offers a 33% 10 year survival rate.

THERAPEUTICS

Trial Treatment of Hodgkin's Disease with Actinomycin Bertrand-Fontaine, J Mallarmé, J Schneider and J Debray Presse méd 62 737-738 (May 15) 1954 (In French) [Paris, France]

Results obtained by the use of actinomycin C in 15 patients (8 of whom were women) with histologically proved Hodgkin's disease treated at the Hôpital Beaujon-Clichy in Paris convinced those in charge of the experiments that the action of this preparation is clearly inferior to that of the established methods of treatment. The drug, dissolved in water, was first given intravenously in doses increasing gradually from 50 mcg to 400 mcg daily, later, the starting dose consisted of 200 mcg daily and the maximum dose of 400 mcg was attained more rapidly. The total dosages given were 12,000 mcg in three patients, 8,000 to 9,000 mcg in five patients, 7,000 to 8,000 mcg in two patients, 5,000 to 6,000 mcg in two patients, 3,500, 2,600, and 1,100 mcg in one patient each. Treatment of the last three patients could not be continued because of serious complications (not necessarily connected with the medication). No parallelism could be found between the size of the total dose given and the results obtained, improvement, when it occurred, always appeared at the beginning of the treatment (during the first week) and was not increased by its prolongation. Anorexia, nausea, abdominal pains, and involvement of the mucous membrane (e g, stomatitis and pharyngitis) were among the side-effects produced by the drug, which on the whole was poorly tolerated, although no serious accident seemed to be directly attributable to it. Rapid but temporary regression of superficial lymph node swelling was secured in one patient with recent, previously untreated disease, and two others were slightly improved, but in the rest the treatment was without effect. Progressive deterioration resulted in the death of five patients. Puncture biopsy, performed during and after treatment in four, failed to show that actinomycin had any cytotoxic effect. Other therapeutic measures, such as radiotherapy, nitrogen mustard, and cortisone, whether used before or after actinomycin, produced unquestionably better results, both locally and generally.

Manifestations of Phagocytosis in Cases of Allergy to Drugs L. Meyler Nederl tijdschr geneesk 98.1137-1143 (April 24) 1954 (In Dutch) [Amsterdam, Netherlands]

Meyler comments on the L E cell in lupus erythematosus, mentioning ,the factors that Hargraves had listed as essential for the appearance of the L E cell. While Hargraves and various other investigators believed that the L E cell occurred only in lupus erythematosus, others believed that this cell was found also in other conditions, such as moniliasis and serum disease. Meyler searched for L E cells in patients with drug allergy. Although he found no L E cells, he observed a manifestation that somewhat resembles the L E cell phenomenon, that is, he observed phagocytizing segment-nuclear leukocytes. He cites histories of nine patients in whom allergy developed in response to various drugs, including sulfonamides, arsphenamine, iodine, methylthiouracil, butylethylmalonyl urea (Soneryl), and Peru balsam. The phagocytes were found in the peripheral blood as well as in the bone marrow. The phagocytic cells were mostly leukocytes with segmented nuclei. The phagocytized material consisted of lymphocytes, rarely of leukocytes, and apparently also of thrombocytes and erythrocytes. In several cases both forms of phagocytosis were found in the same patient.

First Results in 12 Cases of Hodgkin's Disease Treated with Actinomycin C R Martin and J-P Munier Presse méd 62 741-742 (May 15) 1954 (In French) [Paris, France]

Treatment with actinomycin C in 12 patients with demonstrated Hodgkin's disease, most in an advanced and some in a terminal stage of their illness, proved disappointing, 2 of the patients died and only 4 are still in fairly satisfactory condition. Diminution in the size of the enlarged lymph nodes, seen in a few cases, was temporary in character and was apparently due more to the effect of the drug on the surrounding tissues than to its effect on the lymph nodes themselves. In only one instance was it accompanied by a reduction in fever and improvement in the patient's general condition. The treatment was usually well tolerated in the doses given, which consisted of 100 mcg daily, increased gradually to a maximum of 250 mcg daily (total dosage at first, from 5,000 to 6,000 mcg, later, 7,000 mcg and even in one case 9,300 mcg). The side effects were slight, consisting chiefly of dizziness and nausea when the daily dosage was increased from 150 to 200 mcg, occasionally, the injection of the drug was followed by a feeling of general malaise with weakness in the legs. These symptoms regressed within a few days. Icterus appeared in one patient two weeks after cessation of the treatment. Various other forms of therapy, notably cortisone, nitrogen mustard, and x-rays, were tried in some cases with results that, though also temporary, were generally better than those obtained with actinomycin.

The Present Position of Ultrasonics A W Bauer Brit J Phys Med 17 97-102 (May) 1954 [London, England]

Bauer feels that much of the literature of recent years on ultrasonics is concerned with the needless repetition of experiments on small animals with dosages that nobody would think of employing in the treatment of human beings. Great advances have been made in the construction of apparatus. The use of large dosages (more than 3 watts per square centimeter) has been discontinued. There has also been agreement on the use of a frequency of 1,000 kilocycles. The development of the pulsed ultrasonic application has been responsible for great progress. With this method the ultrasonic energy is not applied continuously but in short-term impulses. If, for example, the duration of the impulses, which are repeated 100 times in each second, is limited to one-tenth, we speak about a contact ratio of 1 10, the ratio being that of the duration of the impulse to that of the interval. The heat generated in the course of continuous sonation is almost entirely eliminated by the use of pulsed sonation. The mechanical component of the ultrasonic waves, however, remains active, and the reaction is as if the tissues had been exposed to an uninterrupted mechanical action. Effects due to heat appear either in a very mild form or not at all. Evaluating different views on the mode of action of ultrasonics Bauer directs attention to the predominant importance of the neural factor. The diseases on which ultrasonics exert a favorable action are chiefly those in which the neural factor is of great importance. The results of ultrasonic therapy are discussed on the basis of a questionnaire inquiry made by Stuhlfauth and Woeber in 1953. This questionnaire provided information on the results obtained in more than 100,000 cases. The table that classifies the therapeutic results in percentage figures of very good, good, no or slight effects, and worsening also shows that 28 different entities were treated. The best results were obtained in lumbago, myalgia, contusions, distortions, inflammations of the skin, sciatica, periarthritis, arthritis, and tendovaginitis. Even among patients with Raynaud's disease, epicondylitis (tennis elbow), Sudeck's dystrophy, and Buerger's disease, the combined percentage of very good and good results was between 60 and 70. The author concludes that when used according to proper indications and suitable technique, ultrasonic therapy is effective and free from danger.

Collagen Disease. Scleroderma and Its Treatment with ACTH and Cortisone G Marañon and J Gimena Ann endocrinol 15 106-115 (No 2) 1954 (In French) [Paris, France]

Fibrinoid degeneration of collagen, the protein constituent of the connective tissue, is the primary and basic lesion found in all the so-called collagen diseases. This degeneration takes place chiefly in the median and intimal coats of the precapillary arteriole and is followed by lymphocytic and fibrocytic proliferation. The connective tissue reaction may be so intense as to cause diminution or even occlusion of the vascular lumen, thus producing ischemia and even at times osseous atrophy of the kind often seen in scleroderma with sclerodactylia. The cause of the disturbance is unknown, but allergy and hormonal factors are believed to play an important part in its production, and the possibility that other factors, such as infections and toxins of various kinds, may be partly responsible cannot be overlooked. A clear understanding of the relationship between the collagen diseases and the hypophyseal adrenal system has not yet been arrived at, but corticotropin (ACTH) and cortisone have proved more or less effective in their treatment, producing clinical remissions and even in some cases modifying the underlying histological manifestations of the condition. These effects, however, are usually temporary and cease when the medication is withdrawn. Administration of minimal doses, first of corticotropin and later of cortisone, to two patients in advanced stages of scleroderma with sclerodactylia resulted in improvement that was still evident two months after the cessation of treatment. The first patient, who had associated Raynaud's disease and osteolysis, began to improve within a few days after treatment was started, her movements became easier and more extensive, the flexibility of her skin increased, and she gained weight. Total dosage in her case consisted of 360 mg of corticotropin given in one 10 mg injection daily, followed by 950 mg. of cortisone (25 mg daily). The second patient, who had respiratory system and esophageal involvement and rheumatoid arthritis, received a total of 80 mg of corticotropin in daily doses of 10 mg, followed by 925 mg of cortisone in daily doses of 25 mg. Improvement in her case was less than in the first, undoubtedly because the sclerosis was more advanced and because her hands presented severe sclerotic and arthritic deformity. No signs of hormone intolerance were seen in either patient.

Biological Bases for Interrupted Isoniazid Therapy M Reale, M Garaventa and M Ghione Minerva med. 45 801-805 (March 21) 1954 (In Italian) [Turin, Italy]

The incidence and early emergence of isoniazid-resistant strains of tubercle bacilli may be related to the rhythm of administration of the drug. The authors made in vitro studies to determine the bacteriostatic effect of a temporary contact of the tubercle bacillus with the drug. From 3 to 5 mg of isoniazid per kilogram of body weight was given to the patient with tuberculosis who had not received antibacterial therapy for two days. One hour later, 10 cc of blood was withdrawn, and, after a few crystals of sodium citrate were added, it was diluted with an equal amount of distilled water. This solution was then put into four test tubes in which plates with smears of sputum of the same patient prepared the day before were immersed. They were then put in a thermostatically controlled environment at 37 C (98 6 F) for two hours, after which the plates were removed, washed with sterilized isotonic sodium chloride solution, put in test tubes containing Youmans culture and placed in the thermostatically controlled environment at 37 C. Readings were made at intervals of 24, 48, 72, and 96 hours. They revealed a 72 hour inhibition of the development of bacterial strains sensitive to isoniazid. This test was made on 19 tuberculous patients. The findings suggested that interrupted administration of isoniazid every three days may, in addition to producing a therapeutic action, defer or prevent the emergence of resistant strains and bring about a more effective and more lasting tolerance to the drug. The authors suggest the following regimen for the treatment of tuberculous patients: a single dose of isoniazid (3 to 5 mg per kilogram of body weight) every three days, 12 gm of *p*-aminosalicylic acid in two or three doses the following day, and injection of 1 gm of streptomycin in a single dose the third day. With this method the total dose of each drug is reduced to one third without attenuating the curative effect.

Rheumatic Fever Prophylaxis: Control of Streptococcal Upper Respiratory Infection in Cardiac and Rheumatic Fever Patients and Their Siblings; Preliminary Report. R. A Tidwell Northwest Med. 53 470-476 (May) 1954 [Seattle]

All persons with active streptococcic infections of the upper respiratory tract are possible future victims of rheumatic fever. Others, who are symptom free but whose throat cultures are either persistently or intermittently positive for streptococci, may, as carriers, endanger the health of those with whom they come in contact, especially in school and family groups. The effectiveness of a comparatively inexpensive, long-term prophylactic program for control of streptococcic infection of the upper respiratory tract in patients with rheumatic or cardiac disease and their family contacts was studied in a group of 59 subjects consisting of 31 grade school children, 26 preschool children (many of whom were siblings of those in school), and 2 adults (mothers of children in the group). The series included 11 families and 29 separate children. One 200,000 unit tablet of benzathine penicillin G (Bicillin), a tasteless long-acting salt of penicillin, was given to each of 58 patients daily, before, after, or between meals, to be swallowed whole with water, chewed, or crushed and taken with food. Two tablets daily were required to control the infection in the remaining patient. All persons took the medicament willingly, and its effectiveness in eliminating the beta hemolytic streptococcus was apparently not influenced by either the time or the manner of administration. No evidence of sensitivity to penicillin or of drug resistance was seen in any of the patients during the trial period of from 3 to 10 months. Acute or chronic illnesses present in 25 patients at the start of the prophylactic program included congenital heart disease, 8, rheumatic fever, 13, nephritis, 2, asthma, 1, and streptococcic pharyngitis, 1. The increase in general health as reflected in improved school attendance was remarkable, even in the children with cardiac malformations. No early or late suppurative or nonsuppurative sequelae followed any of the various intercurrent infections experienced by the patients and in none of those who were ill at the start of the program was there any evidence of recurrent rheumatic fever or bacterial endocarditis or any aggravation of renal disease or asthma. Throat cultures taken at monthly intervals or oftener during the period of treatment remained consistently negative for beta hemolytic streptococci, except in one case in which the organism reappeared temporarily when medication was interrupted and in another in which control was secured by doubling the dose. Long-term prophylaxis with benzathine penicillin G can, therefore, be regarded as an economical and effective method of controlling streptococcic infection of the upper respiratory tract.

Local Ambulatory Treatment of Chronic Leg Ulcers with Hyaluronidase, Plasminogen, and Antibiotics I R Spier and E E. Cliffton. Surg., Gynec & Obst 98 667-674 (June) 1954 [Chicago]

Sixteen patients with chronic leg ulcers, who previously had been treated by routine methods for long periods of time without success, were treated by Spier and Cliffton with a combination of enzymes and antibiotics. Many of these patients had received surgical treatment. All had good arterial pulses in their feet. Fifteen were treated entirely as outpatients, and the remaining patient was an inpatient who was being prepared for skin grafting. These lesions were regarded primarily as the result of stasis changes; therefore, surgery and all measures capable of reducing this stasis such as elevation, diet and elastic bandages were utilized. The general management was not changed. The involved area was first washed with a detergent cream composed of sulfonated ether petroleum lactic acid and wool fat cholesterols with 3% hexacholophene solution added (pHisohex). Then, instead of applying the scarlet red gentian violet, hydrophilic nitrofurazone (Furacin) or other ointments plasminogen or hyaluronidase with or without antibiotics was used. Treatment of the wound was completed with a sterile dressing and an Ace bandage. The first patients were treated with liquid preparations in the outpatient department five days a week for an initial period and thereafter three times a week. The enzyme and antibiotic in solution were placed on the ulcer for 30 minutes. Then a gauze pad saturated with the solution was applied over the ulcer and held in place with a strip of petrolatum gauze, dry sterile dressings, and Ace bandage At the outset of this study, alternate cases were treated with plasminogen, plasminogen plus oxytetracycline (Terramycin), hyaluronidase, and hyaluronidase plus oxytetracycline After the initial period, the routine of dressings was hyaluronidase with or without oxytetracycline, three times a week The last six patients were given the medicaments in a water soluble base to take home This ointment was to be kept refrigerated and applied daily at home These patients were seen weekly For the first week the ointment they received contained plasminogen, with bacitracin in four instances and with oxytetracycline in two Subsequently, hyaluronidase with the antibiotic in ointment was used for the next one or more weeks until the cellulitis cleared, and then hyaluronidase in ointment alone was applied This procedure proved successful in many cases in which the customary methods had failed

Anaphylaxis Due to Topical Penicillin E S Carter Jr and C B Cope J Allergy 25 270-271 (May) 1954 [St Louis]

A 44-year-old nurse while receiving a heavy metal treatment for congenital syphilis in 1943, had a generalized pruritic rash that disappeared after cessation of treatment In July, 1946, because of a persistently positive serologic test for syphilis, she received 4,800,000 units of penicillin over a 15 day period without side-effects In February, 1953, she was given an injection of penicillin for bronchitis, and she noted tightness in the chest and wheezing Two days later a rash appeared, and, although a provisional diagnosis of measles was made, no other stigmas of that disease developed On May 26, 1953, she noted slight burning and redness of the right eye She applied some penicillin ophthalmic ointment This was quickly followed by shortness of breath, a flushed appearance, cramping abdominal pain, and the passage of flatus and a large watery stool Asthmatic wheezes were audible throughout both lung fields The blood pressure was 70/50 mm Hg Within 10 minutes of the onset of this reaction she was given epinephrine, phenobarbital (Luminal), atropine sulfate and tripelennamine (Pyribenzamine) and responded favorably A patch test with penicillin ophthalmic ointment several months later, produced a pruritic, erythematous wheal 1 5 cm in diameter with several small pseudopodia The authors feel that if the skin rash, which developed after the second exposure to parenteral administration of penicillin, had been evaluated in its true light and its importance impressed on the patient, she would have been spared the last severe experience It has been proposed that a patient having survived an anaphylactic reaction be provided with identification to the effect that penicillin not be administered under any circumstances The ease with which alarming reactions are precipitated by seemingly insignificant doses of penicillin is most distressing, and it is not impossible that injudicious skin testing itself may provoke a severe or perhaps even fatal reaction

Local Haemorrhage and Necrosis of the Skin and Underlying Tissues During Anti-Coagulant Therapy with Dicumarol or Dicumacyl H Verhagen Acta med scandinav 148 453-467 (No 6) 1954 (In English) [Stockholm, Sweden]

Thirteen cases are reported of an unusual complication occurring after the administration of bishydroxycoumarin (Dicumarol) or ethyl biscoumacetate (Dicumacyl), they are believed by the author to be caused exclusively by these drugs The pattern of occurrence was fairly regular Thrombosis developed in a patient, usually a woman, often after parturition or surgery Therapy with one of the two drugs was instituted, and, on the fifth or sixth day of treatment, a large hemorrhage suddenly developed in the skin, with a hemorrhagic infiltration of the skin and subcutaneous tissues that was extremely painful and was surrounded by a hyperemic reactive zone A few days later the infiltrated tissues became necrotic, with hemorrhagic blisters During the next weeks these necrotic tissues demarcated, leaving a deep ulceration Finally this ulcer healed, leaving an extensive scar The lesion was localized to the buttock in five of the patients, the thigh in four, the lower leg in two, the penis in one, and the mammary gland in one Once a hemorrhage had appeared, the continued administration of bishydroxycoumarin or ethyl biscoumacetate as anticoagulants had no adverse effect on the lesion The patients received routine wound treatment, and three had skin grafts

Eight Fatal Anaphylactic Reactions to Penicillin A. Rosenthal New York J Med 54 1485-1487 (May 15) 1954 [New York]

In the course of an investigation of sudden deaths conducted by the Office of the Chief Medical Examiner of the City of New York, eight instances of sudden death following the injection of penicillin were found At autopsy, which was performed in all but two of the cases, a search was made at the site of injection to determine whether any of the drug had entered the blood stream In none of the cases was there any penetration of a vessel by the needle used to inject the penicillin A review of the types of penicillin used in these cases and of other penicillin reactions, not necessarily fatal, led to the conclusion that it was not one type of penicillin, nor even the procaine radical incorporated in the penicillin, but rather the penicillin itself that was the sensitizing agent and thus the responsible agent for subsequent reactions Reports of fatal and nearly fatal reactions to penicillin are rapidly increasing and demonstrate the ever-mounting importance of the problem of penicillin sensitivity Discrimination must be exercised in the use of this drug There is indiscriminate application of all antibiotics, but, since penicillin was available before the others, the opportunity for its more widespread use and consequent production of sensitization was much greater That reactions to penicillin occur after use by other than the injection-route is now an established fact Penicillin should not be given parenterally without first asking whether the patient had ever experienced an eruption, rash, swollen joints, shortness of breath, or blotching of the skin following the use of penicillin A positive answer or even a suggestive positive answer to such questioning should contraindicate the use of penicillin in any form The presence of asthmatic symptoms at a time when the use of penicillin is contemplated should also serve as a contraindication to its use Inquiry regarding previous reactions and the restriction of the use of penicillin to necessary instances will tend to prevent the tragedies exemplified in the eight reported cases

Complications of Anticoagulant Therapy Review of the Literature and Report of Case R C Raine New England J Med 250 810-812 (May 13) 1954 [Boston]

The anticoagulants are recognized as an important addition to the therapeutic armamentarium of thromboembolic disease Although hemorrhage is the only known complication, there are numerous contraindications blood dyscrasias manifesting hemorrhagic tendencies, large open surfaces with poorly controlled hemostasis after operation, surgery of the brain and spinal cord, active or imminent gastrointestinal ulceration or bleeding, malignant hypertension, particularly when there has been a previous cerebral hemorrhage, and subacute bacterial endocarditis The most important contraindication—the lack of adequate laboratory facilities—may have disastrous results The incompatibility of lumbar sympathetic blocks and other deep needle-puncture procedures and anticoagulant therapy has been stressed in several reports Hemorrhage into the spinal cord has been observed as a result of a diagnostic lumbar puncture A patient with a fractured hip was given anticoagulants two weeks after operation, with resultant extensive ecchymosis at the site of the pinning Questionnaire inquiries revealed many unreported cases of hemorrhagic complications occurring during the use of anticoagulants In a review of 107 cases of fatal drug poisoning, it was found that bishydroxycoumarin (Dicumarol) was the commonest cause of deaths resulting from drugs given orally The author presents the history of a patient with thrombophlebitis that demonstrates the potential hazards of the anticoagulant drugs It is reemphasized that a reliable laboratory and a competent physician are essential for correct use of these drugs Direct effects of the anticoagulants on the vascular wall have not been determined, and individual idiosyncrasies cannot be predicted

Potentially Dangerous Group O Blood J M Gardner and G H Tovey Lancet 1 1001-1004 (May 15) 1954 [London, England]

Patients with blood belonging to groups A, B, or AB must often be given emergency transfusions of group O blood, although, whenever such transfusions are given, there is a possibility that the transfused anti-A or anti B antibodies from the group O plasma may react with the recipient s A or B red blood cell antigens to cause a hemolytic transfusion reaction Investigation showed that most of the group O bloods containing a significant concentration of immune anti-A or anti B antibodies can be detected by a simple screening test for anti A and anti-B hemolysins The test, which is an extension of the routine test for anti A and anti B saline agglutinins used by all major blood banks, can be performed with very little extra work and without any additional materials Application of the test to samples of serum from 1,960 group O blood donors selected at random showed that 185 contained strong anti-A or anti-B hemolysins Strong hemolysins are those that produce from 50% to complete hemolysis Clinical and experimental investigations have not yet determined whether the dangerous component of group O blood is the hemolysin or the immune agglutinin, but apparently if group O bloods containing immune anti-A agglutinins in a titer greater than 1 in 16 can be eliminated, no untoward reaction to immune agglutinins need be feared Investigation of this factor showed that while immune anti A agglutinins in a titer greater than 1 in 16 were present in 10% of the group O serums containing strong anti A hemolysins, no immune agglutinins in this concentration were found in 772 group O serums from which strong hemolysins were absent. Adoption of this simple test for hemolysins as a routine screening procedure for group O donors may be expected to ensure the transfusion of group O bloods containing hemolysins or immune agglutinins (anti-A or anti-B) in high concentration only to patients known to belong to group O

Urinary Excretion of Adrenocortical Steroids by Patients Receiving Salicylates M J H Smith, C H Gray and J B Lunnon Lancet 1 1008 1009 (May 15) 1954 [London, England]

The urinary excretion of adrenocortical steroids in patients receiving salicylates was investigated by a paper chromatographic method that permitted separate estimation of compound E, compound F, and tetrahydrocortisone Three of the patients had rheumatic fever, and two had rheumatoid arthritis All were given sodium salicylate at 4 hour intervals (total daily dosage, 150 to 200 grains [9 to 12 gm]), in addition, the two patients with rheumatoid arthritis subsequently received 40 units of corticotropin (Acthar gel) on two successive days The results showed that, when the salicylates were being given, the urinary excretion of adrenocortical steroids did not exceed the normal range and that, when administration of the salicylates was stopped, there was no decrease in the excretion of the steroids Subsequent administration of corticotropin to the patients with rheumatoid arthritis, however, was followed by a considerable increase These findings indicate that, while there are certain similarities in the metabolic and clinical effects of salicylates and of corticotropin and cortisone the hypothesis that the therapeutic activity of salicylates is mediated by the anterior lobe of the pituitary and the adrenal cortex is untenable

PATHOLOGY

Relationship Between Mediastinal Lipomas and the Thymus M Rubin and S Mishkin J Thoracic Surg 27 494-502 (May) 1954 [St Louis]

The 19 year-old woman reported on by Rubin and Mishkin was admitted in labor to Morrisania City Hospital A chest roentgenogram revealed a large mass in the anterior mediastinum to the right of the heart. The patient was discharged after delivery and advised to return after convalescence On readmission, two months later, the patient stated that shortness of breath had increased in severity Except for dulness and diminished breath sounds over the right side of the chest anteriorly, no other physical abnormalities were found Angiocardiographic studies showed the mass to be unrelated to the heart and great vessels The radiographic appearance of the tumor suggested a mediastinal lipoma The tumor was removed and was found to contain thymic and fatty tissue The possibility suggested itself that mediastinal lipomas may originate in the thymus, as a result of the infiltration of the organ with fat during its involution A review of the literature of so-called lipothymomas (the tumor encountered in the patient in question was representative of this type) and lipomas of the mediastinum gave support for this hypothesis It was noted that, with few exceptions, intrathoracic lipomas are located in the anterior mediastinum in front of the heart and great vessels Many of the large lipomas, exceeding the bounds of the mediastinal compartment were connected by a pedicle or a projection of tissue with the thymic area Benign mediastinal tumors consisting of an admixture of thymic and adipose tissue are comparatively rare They are found in children between the ages of 10 and 15 years The authors assume that the mass in their patient was present when a so-called enlarged heart was found in the roentgen examination of the chest at the age of 14 years Such tumors may simulate cardiac enlargement The authors attempt to reconstruct the possible evolution of lipomas or lipothymomas, pointing out among other factors that, if such a tumor is discovered early in life, both thymus and fatty elements may be found, but that, if involution has taken place, fatty tissue predominates

Thymic Cysts: Review of the Literature and Report of Two Cases. W G Krech, C F Storey and W C Umiker J Thoracic Surg. 27 477-493 (May) 1954 [St. Louis]

Krech and associates report on two men, aged 21 and 26, respectively, in whom thymic cysts appeared as anterior mediastinal masses in roentgenograms The growths were recognized as thymic cysts on histological examination after excision at thoracotomy Eight additional thymic cysts excised through a cervical incision or at thoracotomy, or both, were tabulated from the literature The authors believe that thymic cysts may be divided into three groups (1) congenital, (2) inflammatory, and (3) neoplastic. The non-neoplastic, noninflammatory cysts of the thymus observed in the two patients reported on here are probably congenital in origin A congenital defect may have been present in the form of a patent thymic or thymopharyngeal duct persisting until such time as fluid or hemorrhagic distention occurred. Why this happens is not known Cysts resulting from infection appear to be due to syphilis Although rather common in the past, thymic cysts of this kind are now rarely observed Cysts occurring in thymic neoplasms can probably be attributed to degeneration and necrosis of the tumor The preoperative diagnosis of a thymic cyst is presumptive Any cervical or anterior mediastinal mass may be found to be such a lesion The presence of a mass that could be a cyst of the thymus is an indication for its complete excision This is usually accomplished either through a cervical or thoracic approach, depending on the location of the mass At times a combined approach may be required in order to remove a thymic cyst that lies partly in the neck and partly in the mediastinum Thymic cysts may be unilocular or multilocular The lining epithelium is characteristically cuboidal or pavement-type epithelium In one of the two reported cases medullary and cortical thymic tissue elements were immediately adjacent to this epithelial lining or separated from it by collagenous fibrous connective tissue of varying thickness Hassall s corpuscles were present and most of them were calcified

Biopsy of Kidney in Prone Position R M Kark and R C Muehrcke Lancet 1 1047-1049 (May 22) 1954 [London, England]

The authors have improved on Iversen s technique of kidney biopsy by placing the patient in the prone position This is more comfortable for him, and it results in a greater number of successful biopsies The authors obtained 48 specimens from their first 50 biopsies with Franklin s modification of the Vim Silverman needle The two failures occurred in a grossly hydronephrotic kidney and in a small and very mobile kidney in a thin woman Kidney biopsy is of great value in the clinical and pathological diagnosis of renal disease and should be employed in that field since it is a safe and relatively painless procedure

RADIOLOGY

The Pulmonary Aspects of Polyarteritis (Periarteritis) Nodosa. H P Doub, B E Goodrich and J R Gish *Am J Roentgenol* 71 785-793 (May) 1954 [Springfield, Ill]

Of 15 male and 4 female patients between the ages of 2½ and 64 years with polyarteritis nodosa, who were studied between 1943 and 1952, 11 died Postmortem examinations were done in nine Seven of the eight remaining patients are living and without symptoms Duration of life since diagnosis was made by biopsy was six years in three patients, four years in one, two years in two, and one is a current case Pulmonary symptoms and roentgenologic abnormalities in these patients were neither frequent nor helpful in diagnosis In the nine patients in whom necropsies were done, death occurred within eight months after the onset of symptoms Eight patients died of progressive disease with no remissions, one was well for three years after diagnosis was made by biopsy and then died of an acute recurrence in eight weeks There were observed pathological lesions of polyarteritis nodosa in all nine cases in one phase or another in a generalized distribution Seven showed characteristic lesions in either the bronchial or pulmonary arteries, one in both In all the fatal cases, the appearance was that of progressive chronic illness, with increasing pallor, weakness, and emaciation All showed evidence of multiple systemic involvement Those having extensive roentgenologic changes in the lungs were observed to have minimal and incompatible physical findings Pulmonary symptoms were frequent and handicapping in the patients who died Analysis of the roentgen changes in the six patients with evidence of pulmonary involvement disclosed the presence of parenchymatous infiltration in all In two the familiar bat-wing areas of infiltration were demonstrated Two showed moderately pronounced nodulation These findings are not specific but may be suggestive Major pulmonary symptoms or parenchymal roentgenologic abnormalities indicate a poor prognosis

Roentgenographic Demonstration of Histologically Identifiable Renal Calcification J D Mortensen, A H Baggenstoss, M H Power and D G Pugh Radiology 62 703-712 (May) 1954 [Syracuse, N Y]

Postmortem roentgenographic examinations were made of kidneys from 210 patients in whom renal parenchymal calcification had been recognized histologically at the department of pathologic anatomy of the Mayo Clinic Of the 210 kidneys that were found to contain microscopic evidence of calcification, 174 (82 8%) did not show radiopaque shadows of any type, in 30 (14 3%), radiopaque shadows were observed in isolated portions of the kidney or in localized pathological lesions involving the kidney In only 6 (2 9%) were multiple diffuse parenchymal calcifications (nephrocalcinosis) demonstrated roentgenographically An attempt was made to correlate the roentgenographic demonstrability of deposits of calcium with their histopathological features, chemically determined quantity, and associated causative disorders The following conclusions appeared to be justified Parenchymal calcification commonly exists in kidneys to a degree, extent, or type that is not discernible roentgenographically In certain instances renal calcification that histologically is not readily distinguishable from that which cannot be demonstrated roentgenographically does cast characteristic and identifiable shadows on the roentgenogram The cases in which the authors were able to demonstrate the presence of calcium deposits roentgenologically were associated with primary hyperparathyroidism, chronic pyelonephritis, and chronic glomerulonephritis as causative disorders This group of cases did not include specimens of nephrocalcinosis caused by hyperchloremic acidosis, recurrent renal lithiasis, or hypercalciuria of undetermined cause, which comprise the only other causative disorders known to be responsible for producing roentgenologically demonstrable nephrocalcinosis The reasons why some renal parenchymal calcification is and some is not apparent roentgenographically are not clear and need further study The quantitative chemical determinations in general indicate a higher content of calcium in those kidneys with roentgenologically demonstrable deposits On the other hand, neither gross nor microscopic estimation of degree of renal calcification is indicative of its roentgen demonstrability Roentgenography appears to be a practical method for separating a small group with a certain degree or type of calcification from the large group with microscopically demonstrable renal calcification This small group has certain clinical implications that do not apply to other patients having renal calcification The term "nephrocalcinosis" should be reserved for this type or degree of renal calcification that can be shown roentgenographically

Irradiation Therapy in Hodgkin's Disease C M Nice and K. W Stenstrom Radiology 62 641-653 (May) 1954 [Syracuse, N Y]

In irradiating patients with Hodgkin's disease, as well as with other malignant conditions, it is essential to attempt to utilize an optimum dosage within certain time limits The treatment should be individualized At the department of radiology, University of Minnesota Medical School, in general, when the disease was localized to one or a few regions, an attempt was made by the authors to deliver a minimum of 2,000 tissue roentgens to the tumor in 14 days In the cervical region, this was accomplished by giving 900 r in air to each of three fields. The technical factors were tension of 220 kv , 0 55 mm Cu and 1 mm Al filtration, a half-value layer of 1 35 mm Cu, and 60 cm distance Added filtration and increased distance to achieve better depth dose distribution were used for more deep-seated lesions Large masses of long standing may require heavier dosage, but, even in the smaller masses, a minimum dose of 2,000 tissue roentgens is desirable When there was massive involvement of the mediastinal nodes, small doses of 50 to 75 r in air were used initially to obviate possible edematous compression of the tracheobronchial tree A total tumor dose of 2,000 tissue roentgens was still given within a period of three weeks Total body or spray irradiation was occasionally given in very small doses to patients with widespread involvement Of 208 patients with proved Hodgkin's disease followed up for five years or longer, 52 (25%) survived for five years Of 173 patients followed up for 10 years or longer, 19 (11%) survived for 10 years Clinical staging is considered as the most accurate aid in prognosis and is necessary in comparing series from various medical centers Of the 208 patients, 20 were in stage 1 (involvement of only one lymph node region or a single lesion elsewhere, with no constitutional symptoms), 17 (85%) of the 20 patients survived for five years, 13 of these were followed for 10 years or longer, and 10 (77%) survived for 10 years In stage 2 (involvement of two or more proximal lymph node regions confined to either upper or lower trunk, with or without constitutional symptoms), there was a 90% survival, i e , 18 of 20 patients followed five years, and a 35% survival, i e , 6 of 17 patients followed 10 years Thus the difference between stages 1 and 2 was shown in the 10 year period In the much larger group, stage 3, representing those patients with disseminated disease, the 5 and 10 year survival rates were 10% (17 of 168 patients) and 2% (3 of 143 patients) respectively In stage 1, the treatment of choice is either intensive irradiation or, possibly, surgical excision followed immediately by intensive irradiation In stage 2, intensive irradiation is the procedure of choice In stage 3, less intense or palliative irradiation to reduce tumor masses or to relieve symptoms is indicated It is in the latter group that the nitrogen mustards and triethylene melamine may serve as useful adjuncts

BOOK REVIEWS

Improvement of Patient Care A Study at Harper Hospital By Marion J Wright, R.N M S Associate Director Harper Hospital Detroit. This book is published in cooperation with and under sponsorship of American Hospital Association Cloth. $5 50 Pp 236 with 4 illustrations. G P Putnam s Sons 210 Madison Ave New York 16 1954

This volume presents a comprehensive study of patient care based on the view that each member of the hospital staff plays an important part in the hospitalization program Careful studies were thus made in selected areas to determine the extent of hospital needs and the methods that might best be employed to increase the efficiency of hospital operation Patients were interviewed, as well as members of the medical staff, nurses, and other professional and nonprofessional personnel Data were likewise obtained with reference to types of patients admitted, degree of illness, average length of stay, occupancy rates, admission and discharge procedures, physicians' orders, number of treatments and medications, and other items After basic data had been collected on the amount and kind of care required, the principles of industrial engineering were applied with work samplings in many areas to establish time schedules, new patterns of staffing, and more efficient procedures wherever indicated While this study was related mainly to a selected hospital group, the information gathered and the results obtained should be of great value to any hospital It is fortunate, therefore, that the author s report has been made available in book form

Guide to Standards for Resident Camps for Crippled Children. Easter Seal publication no E 11 Paper $1.50 Pp 29 with illustrations. National Society for Crippled Children and Adults Inc. 11 S La Salle St. Chicago 3 1954

This booklet, compiled for the use of those concerned with orthopedically handicapped children, sets forth standards in relation to (1) physical plant and equipment, (2) admission policies and procedures, (3) health and sanitation, (4) safety (5) administration (6) program, and (7) personnel of resident camps In the appendix suggestions are given concerning the groups and individuals who may cooperate in a camping program for orthopedically handicapped children The appendix also deals with the manner in which national, state, and local resources may be used in establishing and operating such a camp and with some of the legal and insurance problems in camps for crippled children The detailed recommendations given for each of the categories mentioned are logically grouped under the various aspects of the camping situation within that division For example, under health and sanitation, standards are suggested for medical examination of campers and staff, health precautions, food, and sanitation This plan makes quick reference to a particular phase of camping possible and at the same time draws attention to the need for control of all the factors involved in the camping program

The recommendations made go beyond what might be termed minimum standards, they include some that should be met immediately without qualification and others that are desirable goals but not essential to health and safety No apparent differentiation is made between these two types of standards While strong arguments can be offered against the presentation of minimum standards alone, it would seem that, since both types are included, some distinction would be helpful to those using the book In certain instances the standards are less specific than some might wish to have them, however, reasonable flexibility to permit local adaptation within such standards is desirable Guidance on specific provisions is available for the asking in most instances from appropriate national, state, and local agencies This guide should be extremely helpful to those concerned with the operation, direction, and design of camps for handicapped children

French's Index of Differential Diagnosis Edited by Arthur H. Douthwaite M D F R.C.P Senior Physician Guy s Hospital, London. Seventh edition Cloth $20 105s. Pp 1046 with 731 illustrations. Williams & Wilkins Company Mt. Royal and Guilford Aves., Baltimore 2 (John Wright & Sons Ltd 42-44 Triangle West, Bristol 8 England) 1954

It has been nine years since the last edition of this valuable textbook and five years since the death of French who before his death had already turned the editorship of his book over to his associate Over half of the first edition published in 1912 was written by French himself, although none of the sections of the new edition bear his signature the general plan of the book is unchanged The book has been thoroughly revised and only 5 of the 18 contributors also contributed to the sixth edition Unlike most revisions this one is slightly smaller than the last Condensation has been accomplished despite the addition of much new material, by deleting that which has become obsolete by shortening some of the longer discussions, but chiefly by painstakingly eliminating overlapping in various sections Even the index in the back has been shortened and simplified The book is still profusely illustrated with black and white and colored plates it remains what it has been for years, a most useful reference book for student and practitioner

Methods of Biochemical Analysis Volume I Edited by David Glick Professor of Physiological Chemistry University of Minnesota, Minneapolis Cloth $9.50 Pp 521 with illustrations. Interscience Publishers Inc. 250 Fifth Ave New York 1 Interscience Publishers Ltd 88-90 Chancery Lane London W C.2 1954

Because annual reviews are so useful in the fields in which they are available, with this volume Dr Glick has started an annual review of methods of biochemical analysis Comparatively few subjects are to be included in each volume, but each will be covered thoroughly by experts selected because they either 'originated the methods or have had intimate personal experience with them" The topics covered in the first volume are zone electrophoresis (Kunkel) and determination of sulfhydryl groups (Chinard and Hellerman) phenolic compounds (Bray and Thorpe) antibiotics (Kersey and Fink) and vitamin B_{12} (Hoff-Jørgensen) by microbiological methods, ascorbic, dehydroascorbic, and diketogulonic acids (Roe) adrenal steroids (Haines and Karnemaat) and radioactive iodine compounds from the thyroid gland and body fluids (Roche, Lissitzky, and Michel) by chromatography choline (Engel, Salmon, and Ackerman) nucleic acids (Volkin and Cohn), raffinoise and ketose in plants (Whalley and Gross) adenosine triphosphate and related products (Strehler and Totter) catalyses and peroxidases (Maehly and Chance) hyaluronidase in vitro (Tolksdorf), serum lipoproteins by ultracentrifugal analysis (de Lalla and Gofman) and urinary neutral 17-ketosteroids (Engel) The subject index seems adequate, but there is no author index probably because the references in the bibliographies at the end of each chapter are arranged alphabetically by author The printing and binding are good The series ought to be extremely useful

Wine as Food and Medicine. By Salvatore P Lucia, A B M.D Sc.D Professor of Medicine University of California School of Medicine San Francisco Cloth. $3 Pp 149 Blakiston Company (division of Doubleday & Company Inc.) 575 Madison Ave. New York 22, 1954

This book deals with wine as a food and medicine covering such aspects as the chemistry of wine its action on the gastrointestinal, respiratory cardiovascular and neuromuscular systems its use in acute infectious diseases in diabetes mellitus and in the treatment of the aged and the convalescent and its employment as a vehicle for medication The interested reader will find numerous useful references

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These book reviews have been prepared by competent authorities but do not represent the opinions of any official bodies unless specifically so stated

QUERIES AND MINOR NOTES

ROUTINE USE OF PENICILLIN

To THE EDITOR —*I am impressed by the article "Eight Fatal Anaphylactic Reactions to Penicillin" by Dr Abraham Rosenthal* (New York J Med 54 *1485 [May 15] 1954) Facing the threat of penicillin anaphylaxis, it seems to me that the general practitioner will have to revise his antibiotic therapy I would appreciate an up-to-date outline of antibiotic therapy for the general practitioner, who must make his decision at his office or at the bedside without sensitivity test of causative organisms Should penicillin therapy, orally and parenterally, be abandoned? Should the antisyphilitic treatment with 9 million units in the average case be changed?* *M D , New York*

ANSWER —In the past few years there has been an increase in the number of fatal reactions following the administration of penicillin The incidence of anaphylactic-like reactions is still extremely low when one considers its wide use Over 300 tons of penicillin were used domestically in 1953 A complete revision of the general practitioner's use of antibiotic drugs is not warranted on the basis of the above report, but patients should be questioned concerning previous reactions to penicillin If any reactions have occurred, the use of penicillin should be carefully weighed, keeping in mind that, for many infections, other antibiotics are available Patients who have a previous history of allergy to foods, drugs, bacteria, or pollens may be skin-tested intradermally if it is decided that penicillin is the drug of choice Such tests are not infallible, but the patients who are extremely sensitive to penicillin are the most likely to show a positive wheal at the site of the intradermal test If it is decided to use penicillin in spite of past allergic history, the physician must have epinephrine and antihistaminics available for immediate injection if necessary

Penicillin is still the drug of choice in many infections, and its use should not be abandoned The oral administration of this drug is less apt to produce fatal anaphylactic reaction than its parenteral use Accordingly, at the bedside, where skin tests may not be practical, tablets and suspensions of penicillin may be substituted for injections Since anaphylactic reaction in some patients appears to be related to inadvertent intravenous administration, the physician should never fail to attempt aspiration before injection of penicillin to make certain that the lumen of the needle is not within a blood vessel Penicillin is the drug of choice in the treatment of syphilis, and dosage schedules for various stages of this disease are given by Curtis and others (*J A M A* 145 1223 [April 21] 1951)

XANTHOPIA FOLLOWING SNAKE BITE

To THE EDITOR —*Have you any record of a snake-bite victim complaining of yellow vision?*

S B Forbes, M D , Tampa, Fla

ANSWER —In xanthopia the color perception is abnormal, so that a patient sees everything as if through yellow glasses The classical example of xanthopia occurs after ingesting santonin Other drugs, such as amyl nitrite, picric acid, chromic acid, and large doses of digitalis may produce colored vision More recently abnormal color perception has been reported after use of streptomycin Many kinds of pathological ocular function, including bloody injection of the ocular apparatus, disturbances of accommodation, amblyopia, amaurosis, and even total blindness, have occurred following snake bite Ptosis or paralysis of the eyelids is quite characteristic after cobra bites The great reference books on toxicology, such as those of Kobert, Lewin, and Blyth, do not mention xanthopia or any other color disturbances of vision, but a book by Paresh Banerji entitled "Hand book of Snake-bite" (London, Butterworth & Co , Ltd , 1929) speaks on page 38 of a rare perversion of sight in which a victim after snake bites "sees everything in red" Nevertheless, in the histories of 1,134 cases of poisoning by bites of all kinds of snakes in this handbook no xanthopia is reported, although other disturbances of the eye and its appendages are very frequently mentioned The only other work referring specifically to xanthopia is by Hilbert, who published an article entitled "Gelbsehn nach Schlangenbissen" (*Memorabilia* [new series] 18 1-15, 1900) It deals with ocular disease after snake poisoning Now that certain snake venoms are used therapeutically, it is interesting to note that cobra venom in experimental psychological tests actually improved the acuity of vision and enlarged the field of vision in 35 normal persons (Macht and Macht *J Exper Psych* 25 481-493, 1941)

ORANGE JUICE, MEAT, AND MILK

To THE EDITOR —*How much orange juice will provide the alkalinizing effect of 1 gm of sodium or potassium citrate? How much available potassium is provided by 50 cc of orange juice? What percentage of uncooked muscle meat is available as net protein to the consumer? How much cow's milk gives 1 gm of calcium to the imbiber?* *M.D , Pennsylvania*

ANSWER —H C Sherman's book, "Chemistry of Foods and Nutrition," states that the alkaline effect of 100 gm of orange juice is about equivalent to 5 ml of normal alkali Therefore, 1 gm of anhydrous sodium citrate would be roughly equivalent in alkalinizing effect to about 230 ml of average orange juice and 1 gm of anhydrous potassium citrate would be equivalent to about 195 ml of juice According to Bills, McDonald, Niedermeier, and Schwartz (*J Am Dietet A* 25 304, 1949) the potassium content of orange juice is about 190 mg per 100 gm Therefore, 50 ml of orange juice would contain about 95 mg of potassium Whether all of this is in an available form is not known Uncooked lean beef contains 18 to 20% of protein After cooking the protein content varies from about 25 to 27% because of the decrease in moisture Average whole milk contains 118 mg of calcium per 100 ml , according to U S Department of Agriculture Handbook No 8, "Composition of Foods, Raw, Processed, Prepared " In order to obtain 1 gm of calcium it would be necessary to ingest about 850 ml

SHOWERS AND APOPLEXY

To THE EDITOR —*Is there any evidence that habitual cephalic warm and cold showers started early in life help to maintain cortical and subcortical vascular elasticity, thus preventing cerebral apoplexy due to arteriosclerosis?*

C D J Generales, M D , New York

ANSWER —So far as it has been possible to ascertain, there are no evidences of either beneficial or detrimental effects of warm and cold showers on the pathogenesis of cerebral arteriosclerosis, and there are no physiological reasons why this procedure should have any appreciable effect on the probability of apoplexy The prevention of apoplexy is essentially the prevention of cerebral arteriosclerosis External heat or cold do induce changes in the peripheral arterial tension (as illustrated by the cold pressure test of Hines and Brown in early or potential hypertensive disease) and thus by changing the intravascular pressure in the cerebral vessels affect the intracranial circulation There is much reason to doubt whether intracranial arteries and/or arterioles have the capacity to expand or contract to any significant degree In view of the impression that apoplexy due to thrombosis in narrowed sclerotic vessels may be precipitated by relative hypotension (sleep, anesthesia, or perhaps, external heat) and that the trigger setting off the cerebral hemorrhage through the weakened sclerotic arterial walls may be an

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The answers here published have been prepared by competent authorities They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply Anonymous communications and queries on postal cards cannot be answered Every letter must contain the writer's name and address, but these will be omitted on request acute rise in the systemic arterial pressure (rage, fear, violent effort, cold plunge, etc.) it could be argued that warm and cold showers might predispose to apoplexy rather than prevent it.

ERYTHROMELALGIA

To the Editor.—*I saw a 5 month-old boy who for a month had been having attacks of redness of the feet with obvious local heat in the feet and pain during the attacks. The episodes last for 20 to 30 minutes and are precipitated by holding the baby with the feet dependent and probably by application of heat. The attacks appear to fit the description of erythromelalgia. What other disease should be considered in the differential diagnosis? What is the treatment and prognosis?*

J. H. Rogers, M.D., Gadsden, Ala.

Answer.—From the description, the findings are consistent with the diagnosis of erythromelalgia. While this disease has been observed at every age, it is rare below the age of one year. Erythredema polyneuropathy must be differentiated from this disorder in infants. It presents red and painful extremities and is commoner at this age period. The clinical findings in erythredema polyneuropathy are, however, quite distinctive and dramatic and differ from those of erythromelalgia in that, in addition to the local findings, the child is alternately irritable and restless and then apathetic. This disease is persistent rather than episodic, and the hands and face are prominently involved. There is edema, desquamation, and profuse sweating. Photophobia is marked in most patients, and alopecia and salivation are generally present. If such a clinical picture is present, erythredema polyneuropathy must be considered and appropriate studies should be undertaken, such as examination of the urine for arsenic or mercury. Erythromelalgia, on the other hand, presents no such clinical findings. The most prominent symptoms are pain and hyperemia, which are usually localized in the feet and are especially marked if the feet are dependent or their temperature is increased. The symptoms appear at intervals at first, later they may be persistent. Erythromelalgia in some patients accompanies organic vascular diseases, while in others it appears to be due to stimulation of centripetal vasodilator fibers of the posterior roots or peripheral nerves. Syringomyelia and cord tumor have been found in some patients. In most of the patients studied, however, no organic disease has been found and hyperirritability of the vasomotor mechanism occurring in neuropathic patients has been suggested. Little or no information is available on the prognosis of erythromelalgia in infants. Trophic changes generally ensue in the involved feet and hyperesthesia becomes marked. The treatment in the absence of a specific cause is symptomatic. The affected extremities should be kept horizontal to diminish the vasodilatation and associated pain. Cool baths often afford relief of pain, but epidural injections of local anesthetics have not been tried on enough patients to warrant any conclusions as to their efficacy.

TREATMENT OF NEURITIS DUE TO ANEMIA

To the Editor.—*What is the latest treatment for neuritis following pernicious anemia?*

Joseph A. Oliver, M.D., Rockwell, N. C.

Answer.—Cyanocobalamin (vitamin B_{12}) and liver extract constitute the only effective treatment for the neurological manifestations of combined system disease associated with pernicious anemia. There is no evidence that other measures are of any value. It is probably worthwhile to give as much as 1,000 mcg. of cyanocobalamin intramuscularly once or twice a week for five or six injections in order to make certain that the tissues contain optimal amounts of the vitamin, but there is no convincing evidence that these large doses are therapeutically superior to injections of 30 to 50 mcg. once or twice weekly. As long as cyanocobalamin is given in these amounts, there is no contraindication to the simultaneous administration of folic acid, but the latter is of no value in the treatment of the neurological changes and is not required for effective treatment of the anemia. If folic acid is given without adequate amounts of cyanocobalamin, the neurological symptoms may become more severe.

MUMPS VACCINE

To the Editor.—*What is the efficacy of mumps vaccine? Can it be combined in the same syringe with diphtheria-tetanus toxoid? In the past school year 380 cases of mumps occurred in 2,200 Navaho students. We anticipate about 500 new students 10 years old or older next fall. The new students have had no previous schooling and hence supposedly very little exposure to mumps. Should this new group be vaccinated against mumps? What is the duration of the resulting immunity? Would repeat vaccinations be required?*

M.D., Utah.

Answer.—Although reports on the clinical efficiency of mumps vaccine are meager, some physicians who have used it are favorably impressed with its value. The combination of mumps vaccine in the same syringe with diphtheria tetanus toxoid might be ill advised. Ordinarily diphtheria tetanus immunization would be undertaken before one year of age—generally at about 3 months. Mumps is rare during the first 12 months of life. Prior to puberty mumps complications, with the exception of encephalitis, are also rare. If children have been exposed it is probably better for them to have mumps than to face the possibility of acquiring the disease later during adult life. If there have been no active immunizations in students who are 10 years old or older there are likely to be some fairly severe reactions when diphtheria tetanus toxoid is administered. Mumps vaccine is grown in chick embryos. Therefore, anyone allergic to egg might experience a severe reaction that could intensify any sensitivity due to the diphtheria-tetanus toxoid. For statistical purposes and clinical observations, it would be interesting to vaccinate one half of the new pupils. Immunity obtained by mumps vaccine lasts 6 to 12 months. To control an outbreak of mumps, vaccine would probably have to be repeated every six months.

TENDERNESS IN FOOT

To the Editor.—*What is the cause and treatment of a subacute tenderness to finger pressure and hand squeezing along the lateral side of the left foot only? The patient is 50 years old and has no signs of shoe pressure and no other symptoms. The tenderness does not involve the heel or toe, only the mid portion of side and adjacent dorsum.*

Wm. S. Levy, M.D., Woonsocket, R. I.

Answer.—Without any other findings or a history of trauma this case would probably be the result of foot strain. Since the outer side is the strong part of the foot such a strain would presuppose the wearing of a stiff-shanked shoe or some other type of arch support. Strain of the lateral side of the foot is difficult to relieve with supportive measures. Treatment will require a decrease in the amount of time the patient stands or strains his foot. Relief of the strained tissue may be obtained by rest, hot moist packs, and light massage. Simple adhesive strapping with the heel in varus will permit function while recovery occurs.

PULSATION OF BRACHIAL ARTERIES

To the Editor.—*Is there any significance to the sign of visible pulsation of the brachial arteries?*

Joseph V. Waitkunas, M.D., Woodhull, Ill.

Answer.—In the younger age group visible pulsations of brachial arteries are sometimes seen in thin persons or when the arteries are unusually close to the surface, and such is of no clinical significance. In middle aged persons visible pulsations are not unusual, especially when there has been muscle wasting. Such pulsations alone are of little significance. However, if the arteries on palpation are hard and tortuous, it is a definite sign of arteriosclerosis. Also, aneurysm of the brachial artery will cause visible pulsation, but this is unilateral. Visible pulsations of the brachial arteries should be considered in connection with the examination of the other arteries, such as the radial and the retinal vessels.

SEDIMENTATION RATE AND ANTICOAGULANTS

To the Editor —*What changes in the sedimentation rate occur before, during, and after anticoagulant therapy such as is currently used in treating myocardial infarction?*

G E Huston, M D, Marietta, Ohio

Answer —Early in the era of anticoagulant therapy, it was reported that the sedimentation rate was increased by the use of anticoagulants A careful investigation made by Wright and Prandoni (*J A M A* **120** 1015 [Nov 28] 1942) on the effect of bishydroxycoumarin (Dicumarol) on this phenomenon has established that this is actually not the case Later studies by the same workers and others confirmed these findings and established that the same was true for most of the anticoagulants in clinical use today Increase of the sedimentation rate is rather commonly associated with the diseases for which anticoagulants are given, such as myocardial infarction, thrombophlebitis, and pulmonary embolism, but, even though anticoagulant therapy is continued, if the disease process in a patient subsides and there is no other cause for an increase in the sedimentation rate, it will return to normal levels

X-RAY THERAPY

To the Editor —*Are there any long-range adverse effects from the therapeutic use of x-rays in the treatment of osteoarthritis of the lower back? This request is predicated on the presumption that the diagnosis is correct and the therapy is being rendered by a competent radiologist*

A Morris Ross, M D, New York

Answer —If the assumption can be made that the x-ray therapy in the case of osteoarthritis of the lower back is given by competent radiologists, there should be no risk whatsoever of delayed or long-range adverse effects The doses of x-rays usually used lie well within the limits of safety

PREGNANCY TEST

To the Editor —*Please send me details of the technique used in running the pregnancy test on Rana pipiens*

M D, Alabama

Answer —The details of the technique used in performing the pregnancy tests on Rana pipiens can be found in either *Endocrinology* (43 349, 1948) or *Science* (**107** 198, 1948) In brief the procedure is as follows 1 The first morning urine specimen is obtained 2 Five cubic centimeters is injected subcutaneously in the dorsal or lateral lymph sac of the male frog, two or more frogs are used in each test 3 The injected frogs are set aside in glass jars for four hours 4 Urine is obtained from the cloaca with a fine pipette at two and four hours 5 The urine is examined microscopically, and the presence of sperm in the urine indicates a positive test

BCG VACCINE

To the Editor —*In* The Journal, *July 3, 1954, page 949, is a query on BCG vaccine The reply contains a statement to the effect that this vaccine would do no particular harm Such a statement has long been challenged by many physicians I believe the readers should know some of the reasons for this challenge*

When Calmette and Guérin gave this bacillus their names in 1921 and declared it a virus fixé in 1924, it was so reduced in virulence that it would not produce tubercles in animal tissues However, since that time significant changes have occurred in the cultures Suter, Schaefer, and Dubos (Proc Soc Am Bact, *1951, page 90) have carefully examined BCG cultures from several laboratories, including the two mentioned in this reply They found no two alike even on gross culture appearance, and they found that each culture examined was composed of multiple bacterial forms instead of the single bacterial form in the BCG produced by Calmette Moreover, Pierce, Dubos, and Suter* (Proc Soc Am Bact, *1951, page 90) observed that among these multiple forms there was considerable variation in the invasiveness of animal tissues This leaves no doubt that BCG cultures have undergone marked changes since Calmette designated his original one a virus fixé Apparently no two cultures examined have undergone the same changes These changes probably account for the alarming occurrences following administration of BCG to persons and animals during the last 25 years In so many persons who received BCG subcutaneously, abscesses and ulcers developed at the sites of administration and disease of regional lymph nodes broke down and discharged pus for months, so that scarification and puncture methods of administration were recommended Although this reduced the incidence, there are still many such cases reported each year These are clinical lesions that behave like those from natural infections Some of them require treatment including surgery and antimicrobial drugs Dubos* (Am Rev Tuberc 60 670, 1949) *found that, when BCG was introduced into mice on deficient diets, progressive and sometimes fatal pulmonary tuberculosis developed Vorwald, Dworski, and Pratt* (Am Rev Tuberc *62 455, 1950) produced progressive and killing tuberculosis in silicotic guinea pigs with BCG from two different laboratories Hauduroy and Rosset* (Compt rend Acad d sc *232 445, 1951) produced progressive tuberculosis in normal golden hamsters and ground squirrels When BCG was introduced intraperitoneally, all golden hamsters were dead from widely disseminated tuberculosis in four months When introduced intracutaneously, all animals were dead in 12 months*

Many persons who have received BCG have later had clinical tuberculosis, and a considerable number have died from this disease Attempts to determine the type of bacilli causing illness and death have been far too few In The Journal, *May 1, 1954, page 61, attention is called to seven cases of lupus vulgaris having developed from BCG This was prophesied 12 years ago by J A Jensen of Denmark, because he found the virulence of BCG was only a little less than that of the usual tubercle bacillus In the June 19, 1954, issue of* The Journal, *page 773, a well-documented case of tuberculosis resulting fatally from BCG is reported BCG was administered when the man was 20 years old This resulted in a reaction to tuberculin within six weeks The first clinical lesion appeared about a year later From then on numerous clinical lesions developed in various parts of the body including the lungs and kidneys He died from tuberculosis in December, 1953, and BCG was recovered from the numerous lesions Such cases make one strongly suspect that in the past some clinical and some fatal cases of tuberculosis in those who previously received BCG were due to the BCG itself rather than its failure to protect against natural infection In any event, the well-documented evidence regarding BCG cultures and the disease it produces in animals and persons is cause for alarm and justifies challenging the statement in this reply, or wherever it is made, that BCG does no particular harm*

J A Myers, M D
111 Millard Hall
University of Minnesota
Minneapolis 14

To the Editor —*I am concerned regarding the answer in the July 3, 1954, issue of* The Journal, *page 949, to a question on BCG vaccine I feel that the reader would have the impression that this so-called vaccine could do no harm In recent years an impressive amount of information has been gathered in studies on cultures, animals, and human beings that forces one to challenge a statement to the effect that BCG is without harm After approximately 40 years of use, BCG remains a controversial question in all parts of the world Most certainly great caution is justified*

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THE GENERAL PRACTITIONER AND THE MEDICAL SCHOOL

E Grey Dimond, M D , Kansas City, Kan

This paper outlines efforts being made at the University of Kansas Medical School to develop a program that maintains for the university the great value of the specialties as an administrative framework, as the backbone of residency training, and as a means of maintaining high standards for consultation and referral practice, and, concurrently, a program providing a large role for the general practitioner

The methods being used are extramural and intramural preceptorships, postgraduate and circuit courses, and the appointment of general practitioners to the full-time staff These are not "planned" or "projected," but are major, established functions of the school

PRECEPTORSHIPS

Extramural—All senior students are required to spend from five to six weeks as preceptees (fig 1) A panel of general practitioners selected by a committee of the state medical society is submitted to the school, and from this list suitable preceptors are chosen The preceptor is selected only from towns of 2,500 population or less and must be a "solo" practitioner Although the school recognizes that all of our students are not planning to be general practitioners, and some have well-made plans for research or a specialty, no other form of preceptorship is permitted This is to be an experience in "pure" family practice Understandably, the school has had requests from clinic groups, from general practitioners in cities, and from specialists, but the school has felt that the fundamental plan—to give every student an exposure to life as a family physician—could be best achieved by not making exceptions The success of the program has been strengthened by insistence on this "no exception" rule

The practitioner has the responsibility of providing room and board for the preceptee No salary is permitted The lodging is provided in the physician's home by about half the preceptors, others have arranged quarters in a garage apartment a room at the office, or in a local hotel The exact relationship between the student and physician varies widely Some of the students become a true member of the family—living in the home, eating every meal with the preceptor, making every house call, getting up for every emergency with him The preceptor is charged with the responsibility of supervising the student's activities, the preceptor must not consider the student as his associate and send him on house calls and emergencies alone The student assists him in every way, but the preceptor must not consider the student as a locum tenens Because such a detailed experience can be a burden, not only for the physician, but for his wife, the school tries to rotate the responsibility among the preceptors, allowing a "breather" before the next student

Why was the period of five to six weeks selected? First, this is a fair share of the curriculum time Although the school is anxious for the student to have this opportunity, it still realizes that other units in the curriculum have merit and deserve their proportionate time Secondly, present day seniors are usually married, and more than a month is a long period of time for them to be away from their wife and children And thirdly, having a young student living in your home, and stalking your every activity, is exhausting for the physician and his wife Why not allow the preceptorship to be an elective, with the student free to chose or reject it? The school believes that the concept of preceptorship has such merit that it deserves a full curriculum status, as do surgery, pediatrics, etc Further, preceptorship, when a formal part of the curriculum, has dignity and stature, as an elective, it is tantamount to the school's saying "Take it if you want, but look at the choice courses you might take if you stay here at the medical school! ' As an elective, it places the preceptor and the school in competition for the student's favor

Intramural—The program described above provides an opportunity for the physicians in small towns to take part in the teaching, however the general practitioners in the urban community of the school are excluded by the requirements restricting town size In an effort to

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Chairman of the Department of Medicine University of Kansas School of Medicine
Read before the Section on General Practice at the 103rd Annual Meeting of the American Medical Association, San Francisco June 23 1954

give this group a medical school affiliation, the school has invited the Kansas City Academy of General Practice to present a panel of local general practitioners, and from this the school has selected a group of intramural preceptors These men have been assigned the responsibility of staffing the outpatient medicine clinic one morning each week To this clinic, senior students are assigned Each student is provided with a small office and examining equipment The initial history and examination is done by the student, then reviewed by the preceptor Each preceptor sees approximately five patients in a morning and continues on the service for three months

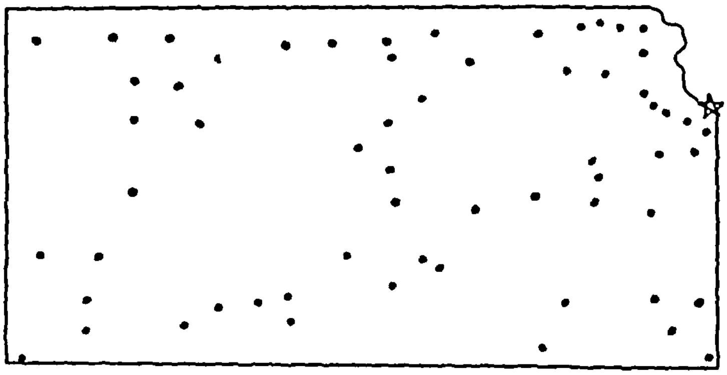

Fig 1—Kansas towns in which senior medical students served with general practitioners in 1953

CIRCUIT COURSES AND POSTGRADUATE INSTRUCTION

Traditionally, the school's responsibility ended on the student's graduation Proof of his knowledge was determined by a state licensing agency, his continuing education was his own responsibility Various organizations—county, state, and national—offered him educational opportunities Certain medical schools in the United States and abroad became recognized postgraduate centers Strangely enough, the physician's own university, with all of its facilities, assumed a very minor responsibility It is in this area that the medical school of today and tomorrow will make its greatest contribution The four year exposure to the mass of knowledge offered prior to the degree is but a small share of the total years of active practice remaining It is during these practice years that the physician's regional medical school must make available to him continuing opportunities for medical education

The physician will continue to learn from experience and from his "practice," but changing techniques and new knowledge make medicine a flowing, changing event No medical school curriculum should concern itself with the responsibility of teaching "all" of the scope of medicine The school succeeds if it shows the student how to approach a patient's problem, how to assay data, what it means to be allowed to be a physician, how to use a library, and how to do critical thinking After the student's graduation, the school's postgraduate division should assume the obligation of filling in the framework, of offering opportunities for study in special fields, and of maintaining "refresher" programs

The inclusion of general practitioners throughout the state in a preceptor program serves to awaken and maintain this desire for postgraduate education Forty-nine of our 62 preceptors were enrolled in postgraduate courses at the University of Kansas Medical Center in 1953 Here would seem to be a true example of "continuing" education[1] The University of Kansas Medical Center has attempted to meet this responsibility in several ways The center has assumed a regional responsibility for postgraduate education and is enrolling in its courses physicians primarily from the Kansas, western Missouri and Iowa, eastern Nebraska, northern Oklahoma and Arkansas area As evidence of the vigor of the program, more physicians enrolled in 1953 in postgraduate courses at the University of Kansas Medical School than any other medical school in the United States The postgraduate techniques can be outlined as circuit and postgraduate courses

Circuit Courses—Over a period of years, members of the staff, in teams of two, have toured defined circuits over the state of Kansas (and recently Missouri) Each tour lasts one week, each man speaks twice a day An advance agent proceeds the pair, arranging location, accommodations, and enrollment The route of the circuit is chosen each year by a committee from the state medical society, the state board of health, the Academy of General Practice, and the school Enrollment in such courses was 489 in 1953-1954 (fig 2)

Postgraduate Courses at the School—Complementing the circuit course, but offering instruction based on clinical material and freely using nationally known guest lecturers, each department and section of the school is responsible for arranging and presenting courses at the school The courses vary in length from two to five and a half days In 1953-1954, 21 such courses were given, covering such fields as anesthesia, radiology, auscultation, pediatrics, and hematology, with 1,730 physicians in attendance[2] A separate auditorium, seating 100, is maintained for this program, and the school has recently completed a suite of hotel room accommodations, providing quarters on the campus for the participants

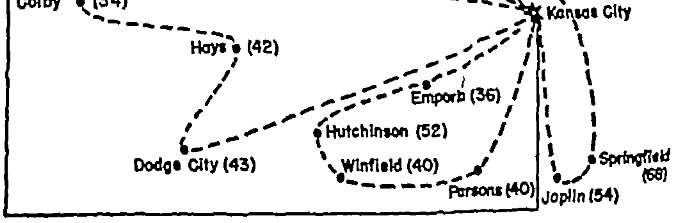

Fig. 2—Route of three 1953 circuit courses with physician attendance indicated

GENERAL PRACTITIONERS ON FULL-TIME STAFF

Although the school has been successful in incorporating general practitioners into its teaching program and in providing them with opportunities for continuing education, it was felt advantageous to have a general practitioner as an actual member of the full-time staff By this means, the preceptors would be provided with a spokesman at the school, and the school would be provided with a man with the proper background to supervise properly the preceptor program, both extramural and intramural Furthermore, such a man would act as an experienced guide in planning circuit course programs Because general practitioners and internists each provide "family physician" care, the department of medicine proves the ideal place to integrate a general practitioner into the administrative framework and into undergraduate teaching Such a physician has been on the staff during the past year, he has had formal responsibility for the preceptor programs and is a member of the postgraduate division

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[1] Delp, M H In the Objectives of Postgraduate Medical Education, panel discussion before the Congress on Medical Education, Chicago, Feb 8, 1954

[2] University of Kansas Medical School Post Graduate Education Bulletin, Kansas City, Kans University of Kansas, 1953

BENEFITS OF THE PROGRAMS

Benefits to the Student —The extramural preceptor program provides the student with a sample of true family practice, here he actually experiences an important feature of medical care, the patient-physician relationship He sees patients in the home environment, he sees patients with a social status similar to those for whom he will provide care during his own practice days, and he sees the total patient, as a member of a family and community The school believes the preceptorship supplies a more accurate sample of what is meant by "total patient care" than any other means Other schools have utilized such techniques as assigning students to families or persons selected from their welfare clinics Such techniques are artificial, exposing the student to unreal and unlikely environmental factors The preceptorship is a true sampling of the practice of medicine The student learns the economics of medicine, the politics of medicine, his wife often accompanies him on the preceptorship and gains, for the first time, an awareness of the role of the physician's wife

Benefits to the State —It is difficult to document the number of students that the preceptor program has actually attracted to the more rural areas of Kansas How many might have gone into the region without the program, how many have been dislocated by military service, how many decided against general practice after actually seeing the general practitioner's problem—these are all factors that make any statistical analysis inaccurate However, two arithmetic items are significant First, in Kansas towns of 1,000 or less, 220 additional general practitioners have begun practice For the previous 50 years, there had been a yearly loss of physicians from these Kansas areas Second, in the years 1900 to 1950, Kansas consistently lost more physicians than it gained In 1950, and again in 1951, Kansas gained 100 physicians The citizens of the area have certainly benefited from the "continuing" education of the preceptors Extension of the postgraduate efforts to include lay education programs will further benefit the citizens [3]

Benefits to the Physician —The student serves as a vital stimulus to the physician The student fresh from the school brings ideas and questions that provoke thought and reading The physician seeks postgraduate education In 1953-1954, 79% of the preceptors were enrolled in courses at the University of Kansas alone Of the 1,730 physicians enrolled for postgraduate courses given by the school, 991 were from the state of Kansas (total physicians in state, 2,100) The number enrolling elsewhere would increase this percentage The practice of medicine gains new excitement when it is combined with the responsibility of teaching

Benefits to the School —The school benefits in several ways First and primarily, the mission of the school, to prepare physicians for the particular needs of its own geographical area, is more adequately realized A further mission of the school, to provide continuing education for its regional physicians, is certainly achieved A third benefit, intangible but real, results The practitioners throughout the region, as members of the teaching staff and as participants in continuing education, give the school their enthusiastic support Anyone familiar with the problems of a medical school can appreciate the value of enthusiastic and loyal regional physician support

COMMENT

A medical school has certain obligations Two of these are the preparation of physicians for "family care" and the continuation of the physician's education during his practice years To meet these obligations, the University of Kansas Medical School has set up a program including extramural and intramural preceptorships, postgraduate and circuit courses, and appointment of general practitioners to the full-time staff Benefits to the student, the state, the physician, and the school have been shown For the future, general practice residencies and staffing of the postgraduate division are logical additions to the program

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[3] Wescoe W C Responsibilities of the Medical School to the State It Serves Missouri Med 50 841 (Nov) 1953 Your School of Medicine J Kansas M Soc 54 63 1953

Renal Insufficiency.—Renal lesions once thought irreversible have in many instances proved to be highly reversible While renal function in these instances has not always been completely recovered it has been sufficiently restored to allow a return to normal life—women have been able to undertake pregnancy and men to resume their activities as breadwinners Probably the greatest stimulus to the changing point of view has been the increased knowledge derived from the study of acute tubular necrosis (so-called lower nephron nephrosis"), which, while indeed serious and in many instances fatal, is susceptible of remarkable healing If after its onset an internal environment compatible with life can be maintained, renal tubular repair will begin, and if sufficient time can be gained, resumption of renal function will occur In acute tubular necrosis, time" for healing has been gained by use of extracorporeal artificial kidneys, transperitoneal lavage, conservative medical means, and by other measures

If acute lesions can heal, it seems logical to assume that chronic lesions also may heal, provided there is sufficient time to do so and that further injury can be prevented As with acute lesions, meticulous attention is directed to the restoration of distorted chemical patterns resulting from renal insufficiency Particular attention is focused upon reëstablishing the fluid and electrolyte balance so necessary to normal physiologic function The progress of many patients with chronic renal insufficiency seems to support the idea that some healing does occur A physician who disavows the challenge of treating renal insufficiency, regardless of its duration, fails in his obligation, since he may lose the opportunity of bringing about a cure or at least adding years to the patient s life—J Hopper Jr , M D A Bolomey M D., and R Wennesland Chronic Renal Insufficiency Part I Appraisal of the Patient Part II Treatment, *Annals of Internal Medicine* July 1954

HEPATITIS FOLLOWING THE INGESTION OF PHENYLBUTAZONE

Ephraim P Engleman, M D , Marcus A Krupp, M D
James F Rinehart, M D , San Francisco
Capt Robert C Jones
and
Major John R Gibson, (MC), U S Army

Many of the toxic reactions to phenylbutazone have been reported previously, these have included edema[1] and toxic effects on the skin,[2] gastrointestinal tract,[3] hematopoietic system,[4] central nervous system,[2a] heart,[5] and probably the eye[5a] The possibility of deleterious effects of phenylbutazone on the liver has not been publicized adequately The following case reports illustrate the potential severity of such complications

REPORT OF CASES

CASE 1 —A 78-year-old white housewife was hospitalized on Nov 28, 1952, because of jaundice of four days' duration For some 40 years she had complained of multiple joint pains, which were caused by degenerative joint disease, especially of the hips On Oct 16, 1952, phenylbutazone therapy was started in a daily oral dose of 800 mg Symptomatic improvement was noted On or about Nov 1 she experienced mild abdominal pain, which persisted until her entry into the hospital On Nov 15, she first noted that her urine was darker than normal Jaundice was observed on Nov 25, and phenylbutazone therapy was discontinued the same day Three days later she was hospitalized

The patient had received no injection for at least six months previous to this illness She had never been given transfusions or exposed, to her knowledge, to persons with jaundice or to any known hepatotoxin At the age of 19 she had had jaundice for four days Her history was otherwise noncontributory On the patient's admission into the hospital, physical examination showed an obese woman who was moderately icteric The temperature was 98 F, pulse rate, 72 beats per minute, and blood pressure, 150/80 mm Hg Motion of both hips was markedly restricted A smooth, soft, and slightly tender liver edge was palpable 4 cm below the right costal margin in the midclavicular line No other physical abnormality was present

Hospital Course—The patient's general condition was fairly stationary for about one week Treatment included a high protein diet and administration of supplemental vitamins On Dec 6, the patient's condition deteriorated, profound anorexia, nausea, frequent emesis, and increasingly severe abdominal pain were noted She was maintained thereafter on parenteral fluids Her subsequent course was progressively downhill with increasing jaundice On Dec 8, she showed signs of congestive heart failure, for which she was digitalized On Dec 12, she became irrational and semicomatose and had only semilucid intervals thereafter She was afebrile throughout her hospitalization, except for the period from Dec 7 through Dec 10, when her temperature rose but did not exceed 100 F She died Dec 15

Laboratory Data—On Nov 29, the packed cell volume (PCV) was 35 cc %, hemoglobin, 11 8 gm per 100 cc, white blood cell count, 8,100 per cubic millimeter with 71% polymorphonuclear cells and otherwise normal differential count, and corrected sedimentation rate (Wintrobe), 38 mm at the end of one hour Urinalysis showed normal results except for the presence of bilirubin (1+) The serologic test for syphilis was negative On Dec 2, the PCV was 40 cc %, hemoglobin, 10 4 gm, erythrocytes, 3,300,000 per cubic millimeter, leukocytes, 7,250 per cubic millimeter with 78% polymorphonuclear cells, platelets, 112,000 per cubic millimeter (normal, 250,000 to 300,000), and bleeding and clotting times, normal On Dec 8, the PCV was 37 cc %, hemoglobin, 10 0 gm, white blood cell count, 9,550 with 77% polymorphonuclear cells, and corrected sedimentation rate (Wintrobe), 44 mm at the end of one hour

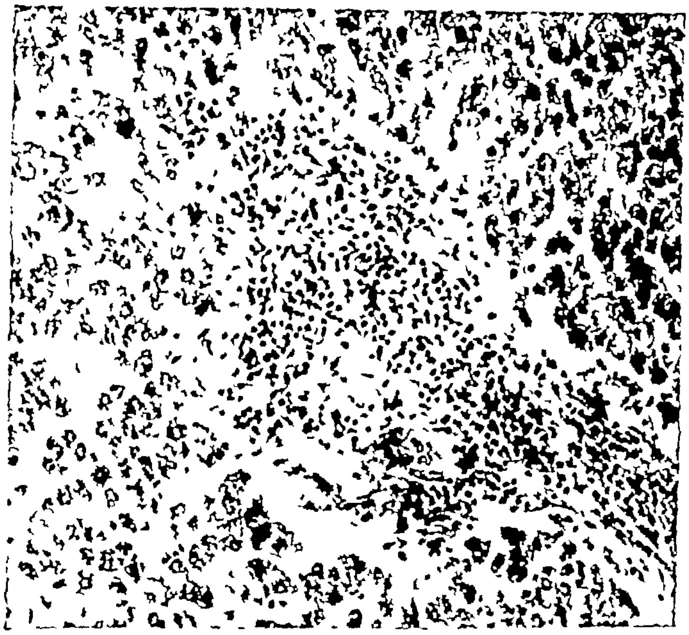

Fig 1—Section of liver of patient reported on in case 1 Liver cells show degenerative changes and some appear to be necrotic Delicate strands of fibrous tissue extend from the portal space, adjoining which there is some cellular infiltration

Liver function studies on Dec 1 showed thymol turbidity value, 5 units, thymol flocculation, none, zinc sulfate turbidity, 6 units, cephalin flocculation, none in 48 hours, serum bilirubin, 5 7 mg per 100 cc in 1 minute, 8 4 mg in 30 minutes, serum alkaline phosphatase, 29 7 S, J & R (Shinowara, Jones, and Reinhart) units, serum cholesterol, 752 mg per 100 cc, total serum protein, 6 3 gm per 100 cc, with albumin 3 2 gm and globulin 3 1 gm, and prothrombin time, 81% of normal On Dec 4, the serum cholesterol level was 1,026 mg On Dec 7, a two hour urine urobilinogen test showed 2 36 Ehrlich units On Dec 8, the tests showed thymol turbidity, 5 units, thymol flocculation, none, zinc sulfate turbidity, 5 units, cephalin flocculation, none in 48 hours, serum bilirubin, 7 3 mg in 1 minute and

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From the Medical Service of the Veterans Administration Hospital the Department of Medicine and Pathology University of California Medical School, and the Department of Medicine, Stanford University School of Medicine San Francisco

Dr Albert W Snell aided in the preparation of this paper

[1] Hemming A and Kuzell, W C The Pharmacologic and Clinical Characteristics of Phenylbutazone (Butazolidin) Antibiotics & Chemother **3** 634 (June) 1953

[2] (*a*) Kuzell, W C, and others Phenylbutazone Further Clinical Evaluation, A M A Arch Int Med **92** 646 (Nov) 1953 (*b*) Fishman, H C, and Reynolds, J Exfoliative Dermatitis Following Ingestion of Phenylbutazone (Butazolidin), J A M A **153** 642 (Oct 17) 1953

[3] Kuzell and others[2a] Shields W E, Adamson N E Jr and MacGregor, J B Peptic Ulcer Perforation Following Administration of Phenylbutazone, J A M A **152** 28 (May 2) 1953 Raffensperger, E C Multiple Gastric Ulcers Occurring During Phenylbutazone Therapy ibid **152** 30 (May 2) 1953 Krainin, P Gastric Ulcer with Massive Hemorrhage Following Use of Phenylbutazone Report of a Case, ibid **152** 31 (May 2) 1953

[4] Stephens C A L, Jr, and others Benefits and Toxicity of Phenyl butazone (Butazolidin) in Rheumatoid Arthritis, J A M A **150** 1084 (Nov 15) 1952 Hemming and Kuzell[1]

[5] (*a*) Engleman, E P, and others Uncommon and Serious Reactions to Phenylbutazone A Clinico-Pathologic Study, Ann Rheumat Dis **12** 351 (Dec) 1953 (*b*) Steinberg, C L, Bohrod, M G, and Roodenburg, A I Agranulocytosis Following Phenylbutazone (Butazolidin) Therapy Report of a Fatal Case, J A M A **152** 33 (May 2) 1953

12 8 mg in 30 minutes prothrombin time, 66% of normal, serum protein 6 5 gm with albumin 3 0 gm and globulin 3 5 gm serum cholesterol, 986 mg , and alkaline phosphatase, 40 2 S J & R units

A liver biopsy, which was performed on Dec 3 was compatible with a diagnosis of cholangiolitic hepatitis with no evidence of hepatic biliary obstruction A roentgenogram of the chest on Dec 1 showed pulmonary congestion and edema with possible hypostatic pneumonia at the right apex Attempts to visualize the gallbladder failed on two occasions

Autopsy —At autopsy the significant alterations were noted in the heart and liver The coronary vessels showed extensive arteriosclerosis, while old and recent infarcts were seen in the myocardium These were believed to be the immediate cause of death The liver weighed 1,815 gm and was dark brown and firm The sectioned surfaces of the liver bulged in some areas and extensive mottling was noted throughout Microscopic sections of the liver showed infiltration of the portal spaces with polynuclear and mononuclear leukocytes Projecting from the portal spaces were septal strands of fibrous tissue, which were also infiltrated with inflammatory cells Adjoining liver cells showed degenerative changes, and a smaller number were necrotic These pathological alterations are those of an acute toxic hepatitis (fig 1)

CASE 2 —A 40-year-old housewife consulted her physician on Dec 30, 1952 because of pain in the left shoulder of several days duration A diagnosis of bursitis was made The patient s history was entirely noncontributory She had never had gastrointestinal symptoms or jaundice She had never received parenteral injections or transfusions, and she was not aware of exposure to hepatotoxins or to anyone with jaundice Phenylbutazone therapy, with doses of 200 mg three times daily, was started on Dec 30 1952 On Jan 2 1953, the use of phenylbutazone was discontinued because of severe nausea and vomiting During the next few days the patient complained of malaise, anorexia and vague epigastric distress without relation to meals On Jan 12, icterus was first noted Jaundice increased progressively and reached its maximum on Jan 31, when the stools were totally clay-colored Treatment consisted of rest and a high carbohydrate, high protein, low fat diet with supplemental vitamins Her subsequent course was one of slow improvement and was generally uneventful A biopsy of the liver was done on Feb 8 Jaundice gradually receded, and by March 2, 1953 the patient looked and felt normal and has continued to do so ever since

Laboratory Data —On Jan 24, 1953, the cephalin flocculation was 1+ in 48 hours, icterus index, 92 urine urobilinogen, 1+, undiluted (slightly reduced) On Jan 31, the icterus index was 125 On Feb 2 the blood level of phenylbutazone was 2 36 mg per 100 cc (control studies ruled out a false determination because of icterus) On Feb 4 the hemoglobin level was 13 2 gm per 100 cc red blood cell count, 4 280,000 per cubic millimeter and white blood cell count, 7,900 per cubic millimeter with 79% polymorphonuclear cells The urine contained bile The urinary urobilinogen test was positive, 1 10 cephalin flocculation, 3+ in 24 hours and 4+ in 48 hours thymol turbidity 17 units, icterus index 102, serum bilirubin level, direct 12 7 mg per 100 cc and indirect, 18 8 mg. per 100 cc , serum cholesterol 178 mg per 100 cc cholesterol esters 68% serum alkaline phosphatase 6 2 King-Armstrong units serum protein 6 2 gm per 100 cc , albumin, 3.5 gm and globulin 2 7 gm and prothrombin concentration, 100% On Feb 6, the icterus index was 76 units On March 2 the hemoglobin level was 12 gm , white blood cell count, 4 950 with 59% polymorphonuclear cells urine urobilinogen positive 1 20 icterus index, 22, serum bilirubin, 4 7 mg , cephalin flocculation 3+ in 48 hours On April 16 the icterus index was 7 serum bilirubin, 1 25 mg and urine urobilinogen, positive dilution 1 20 On April 29, the cephalin flocculation was 3+ in 48 hours icterus index 5, thymol turbidity 4 5 units zinc turbidity 11 units, serum bilirubin, direct, 0.31 mg and indirect 0 37 mg serum protein, 5 4 gm and albumin, 4 3 gm and globulin 1 1 gm %

Roentgenograms on Feb 4, 1953 showed no abnormalities in the chest an upper gastrointestinal tract series showed a constant duodenal deformity with an ulcer crater at its center Local pressure showed no tenderness On April 30, 1953 a gastrointestinal series showed healing of the previously noted duodenal ulcer with residual scar

Section of the liver biopsy specimen, performed on Feb 8, showed slight cellular infiltration of the portal spaces and evidence of hepatocellular injury in the presence of shrunken, swollen, and degenerating cells Some cells exhibited large hyperchromatic nuclei indicative of a regenerative response (fig 2) Although less acute, this picture was similar to the toxic hepatitis seen in the patient reported on in case 1

CASE 3 —A 62-year-old janitress complained of pain in the right shoulder of eight months duration Her history was noncontributory, she had never received parenteral injections or transfusions, and there had been no known exposure to persons with jaundice or to hepatotoxins

The physical examination showed moderate obesity The blood pressure was 160/100 mm Hg Findings were not otherwise contributory except for the right shoulder which was moderately restricted in motion and painful On May 2, 1952, she was started on a course of phenylbutazone, 200 mg four times daily Subjective improvement occurred almost immediately The symptoms recurred when the dosage was reduced She was consequently maintained on a daily dose of 800 mg On May 24, she complained of malaise headache upper abdominal discomfort, and rash The use of phenylbutazone was discontinued immediately Examination showed a morbilliform eruption over the extremities The temperature was within normal limits Mild icterus was noted The abdomen showed no abnormalities the liver and spleen were not palpable A high carbohydrate high protein, low fat diet and rest were prescribed Within the next few days, the patient continued to experience general malaise and abdominal discomfort, and the icterus increased somewhat On or about June 1, 1952 she felt improved and her subsequent course was one of progressive improvement By June 26 she felt well and looked normal At no time were the liver and spleen palpable.

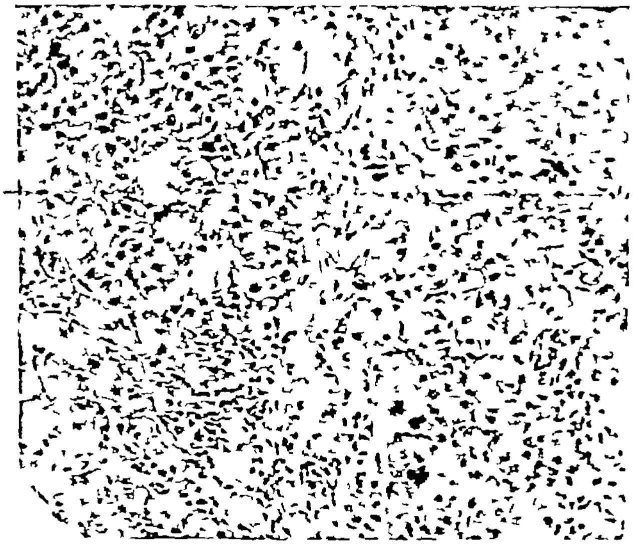

Fig 2.—Section of tissue from liver of patient reported on in case 2. This section shows evidence of hepatocellular injury in the presence of shrunken cells some showing nuclear chromatolysis

Laboratory Data —On April 28 1952 the packed cell volume (PCV) was 38 cc % corrected sedimentation rate (Wintrobe) 11 mm at the end of one hour white blood cell count 5 000 per cubic millimeter with polymorphonuclear cells 60% and urinalysis within normal limits On May 7, the white blood cell count was 6,400 May 14, 4 500, May 21 4 000 and May 27, 6 000 Differential counts were consistently within normal limits

On May 27, the hemoglobin was 14 gm per 100 cc, and the urinary urobilinogen was positive at 1 10 The urine contained bile On May 29, the serum bilirubin was 2 8 mg direct and 1 0 mg indirect, thymol turbidity, 16 units, and cephalin flocculation, none at 48 hours

CASE 4—A 63-year-old housewife complained of scattered aches and pains of several years' duration, which were believed to be due to degenerative joint disease Her history was essentially noncontributory She had received no parenteral injections or transfusions There had been no known exposure to persons with jaundice or to known hepatotoxins Physical examination was entirely normal, except for the presence of Heberden's nodes

She was given phenylbutazone orally in a daily dose of 600 mg starting on July 17, 1952 Symptomatic remission occurred, and the drug therapy was therefore stopped on July 29 By Aug 6, symptoms had recurred, and phenylbutazone therapy was resumed, this time in a daily dose of 400 mg On Aug 11, a generalized morbilliform rash developed, and she complained of malaise and upper abdominal discomfort Icterus was noted, and the drug therapy was stopped immediately On examination, the patient showed obvious mild icterus The liver and spleen were both palpable one to two fingerbreaths below the costal margin The liver was slightly tender The patient was treated with bed rest, high carbohydrate, high protein, low fat diet, and supplemental vitamins Her clinical course was one of uneventful recovery Within a few days, the liver and spleen were no longer palpable By Sept 1, 1952, she was recovered clinically

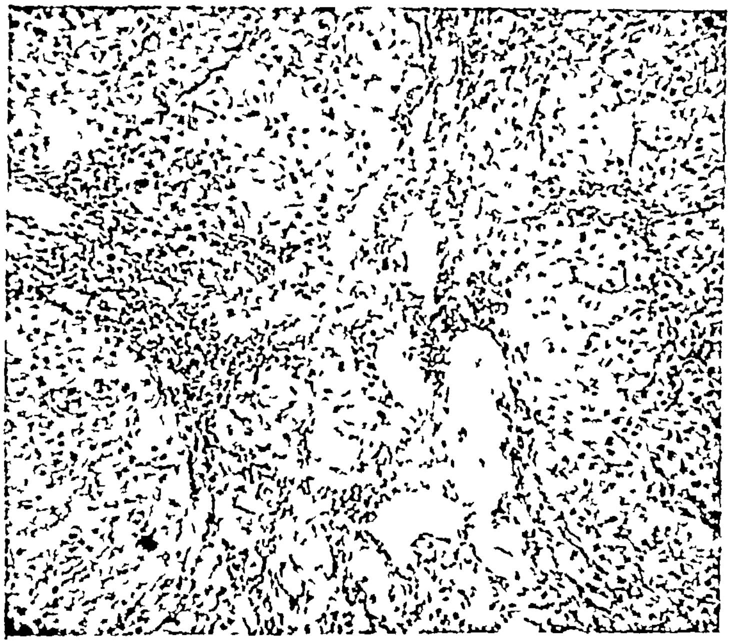

Fig 3—Section of liver of patient reported on in case 6 A representative section of the liver showing the characteristic appearance of so-called toxic cirrhosis

Laboratory Data—Repeated blood cell counts were within normal limits, the urine specimen contained bile On Aug 12, the icterus index was 41, urine urobilinogen, positive at 1 10, and cephalin flocculation, none Additional icterus indices were as follows 32, 29, and 17, on Aug 14, 16, and 18, respectively[6]

CASE 5—A 55-year-old white female physical therapist was hospitalized on Oct 6, 1953, because of jaundice of two days' duration She had experienced recurrent joint pains due to degenerative joint disease since 1949 On Sept 28, 1953, phenylbutazone, 0 1 gm three times daily, was prescribed On Oct 4, she noted malaise, upper abdominal discomfort, light stool, and dark urine, jaundice was observed, and the use of phenylbutazone was discontinued

For one year she had had symptoms of angina pectoris During the past eight months she had complained of rapid fatigue In April, 1953, six months prior to the onset of hepatitis, she was given three intramuscular injections of vitamin B_{12} The syringes and needles had been sterilized in an autoclave No other medicament had been administered parenterally She had never received a transfusion There had been no known exposure to hepatotoxins or to persons with jaundice

On examination, the patient showed obvious icterus The extremities were normal except for tenderness of the knees and the interphalangeal joints of the fingers The remaining abnormal physical findings were limited to the abdomen The liver was palpated four fingerbreadths below the right costal margin Its edge was smooth and slightly tender The spleen was not felt

Treatment consisted of rest, a high protein diet, and administration of supplemental vitamins For the first seven weeks her temperature varied between 98 6 and 101 6 F, and her course was one of progressive and intense jaundice Subsequently she improved slowly, and her recovery was considered complete on Jan 17, 1954, when physical and laboratory tests showed essentially normal results

Laboratory Data—On Oct 6, 1953, the hemoglobin level was 13 1 gm per 100 cc, white blood cell count, 6,200 per cubic millimeter with a normal differential, packed cell volume, 41 cc %, corrected sedimentation rate (Wintrobe), 40 mm at the end of one hour, urinalysis, results within normal limits except for the presence of bile, blood Kahn test, negative, and Kolmer test, 1+, icterus index, 18 units, serum bilirubin, direct, 2 2 mg per 100 cc, indirect, 1 2 mg per 100 cc, cephalin flocculation, 4+, thymol turbidity, 14 units, prothrombin time, 50% of normal, alkaline prosphatase, 9 King-Armstrong units On Oct 26, the icterus index was 57, serum bilirubin, direct, 9 9 mg, indirect, 7 2 mg, serum cholesterol, 238 mg, and cholesterol esters, 68 mg, cephalin flocculation, 4+, thymol turbidity, 27 units, and prothrombin, 25% of normal On Nov 10, the icterus index was 44, serum bilirubin, direct, 3 6 mg, indirect, 4 1 mg, cephalin flocculation, 3+ in 48 hours, thymol turbidity, 4 units, and prothrombin, 76% of normal On Nov 30, the cephalin flocculation was 2+ in 48 hours, icterus index, 15 units, prothrombin, 94% of normal, thymol turbidity, 12 8 units, and serum bilirubin, direct, 1 8 mg, indirect, 1 10 mg On Dec 15, the cephalin flocculation was 2+ in 48 hours, thymol turbidity, 9 4 units, icterus index, 11, prothrombin, 74% of normal, serum bilirubin, direct, 0 66 mg, indirect, 0 78 mg On Jan 4, the sulfobromophthalein (Bromsulphalein) test showed 6% retention in 45 minutes (normal, 3% retention), cephalin flocculation, 1+ in 48 hours, icterus index, 10, thymol turbidity, 11 units, and serum bilirubin, direct, 0 22 mg, indirect, 0 76 mg

CASE 6—A 60-year-old widow complained of pain in the hips of four years' duration due to degenerative joint disease of the hips Her treatment had included vitamins given orally, local diathermy, and x-ray therapy She had not, in the past year, received parenteral medication or transfusion There was no known exposure to patients with jaundice or to hepatotoxins Her history was noncontributory Her intake of alcohol in recent years had consisted of two or three cocktails daily Physical examination showed normal results except for marked restriction of both hips On May 23, 1952, phenylbutazone was prescribed in a dose of 200 mg three times daily Because of inadequate symptomatic improvement, the dose was increased to 200 mg four times daily on June 5 On June 15, the patient complained of nausea, vomiting, and upper abdominal pain, it was then that icterus was first recognized Phenylbutazone was promptly withdrawn Except for the icterus, physical findings were not remarkable She was placed on a bed rest regimen and given a high carbohydrate, high protein, low fat diet and supplemental vitamins Her subsequent clinical course was a stormy one Jaundice progressed, reaching its maximum on or about June 28 On this date, the liver was palpable and firm Although the jaundice receded during the next few weeks, her clinical course was manifested by severe nausea, emesis, and abdominal discomfort On July 14, only slight icterus remained, however, spotty hemangiomas were noted over both arms, chest, and back Pitting edema was present over both legs and the sacrum The abdomen was distended and contained a massive amount of fluid On July 22, 4,000 cc of amber-colored fluid was removed from the abdomen From July 24 to Aug 13, she had repeated paracenteses Hematemesis first occurred on

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[6] Dr Edwin L Bruck gave permission to include this case

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Aug 7 and occurred repeatedly thereafter, necessitating multiple transfusions Because of the increasing evidence of portal obstruction, manifested by repeated gross hematemesis and recurring ascites, a portocaval shunt was done on March 15, 1953, and a liver biopsy was obtained The patient died in hepatic coma on April 4, 1953 Postmortem examination was not obtained

Laboratory Data—On June 27, 1952, the hemoglobin level was 11 2 gm per 100 cc., red blood cell count, 3,600,000 per cubic millimeter; and white blood cell count, 12,500 per cubic millimeter with a normal differential count. On June 28, the cephalin flocculation test was 4+ in 48 hours, serum bilirubin, 8 4 mg , and icterus index, 43 On July 9, the hemoglobin was 10 2 gm erythrocytes, 2,950,000 per cubic millimeter, and leukocytes, 15,100 per cubic millimeter with 72% polymorphonuclear cells On Aug 5, the serum protein was 5 7 gm , albumin, 2 6 gm , and globulin, 3 1 gm , and prothrombin time, 50% of normal On Aug 11, the red blood cell count was 1,800,000 per cubic millimeter and hemoglobin 6 1 gm

Sections of the specimen of the liver, obtained on March 15, 1953, showed an appearance of irregular nodularity, which may be interpreted as a toxic cirrhosis (i e., nodular regeneration following an extensive hepatocellular injury) Irregularly rounded nodules of liver cells were separated by bands of fibrous tissue, which were infiltrated with lymphocytes and plasma cells (fig 3) At this time the liver cells were well formed and filled with glycogen

COMMENT

All the patients whose cases are reported were women (see table) There had been no known antecedent liver disease except that of the patient in case 1, who had had jaundice for four days 59 years previously

Isolated instances of hepatitis following ingestion of phenylbutazone have been recorded by others [7] It is generally agreed that the unpredictable occurrence of viral hepatitis makes its exclusion as a coincidental complication a difficult one However, certain observations suggest strongly that the liver disease in the patients described here was that of a toxic hepatitis for which phenylbutazone was the major, if not the sole, contributory factor None had had known exposure to persons with jaundice, none had received transfusions prior to the hepatitis, and none had received parenteral therapy within six months before the onset of hepatitis All had been free of constitutional symptoms prior to the administration of phenylbutazone, with the exception of the patient in case 5, who had complained of rapid fatigue for eight months

There had been no exposure to recognized hepatotoxins The temporal relationship between the administration of phenylbutazone and the onset of hepatitis was notable Jaundice appeared 6 to 40 days after the ingestion of the initial dose of the drug In five of the six patients, the use of phenylbutazone was not discontinued until icterus appeared Emesis forced cessation of phenylbutazone therapy 10 days before jaundice occurred in the sixth patient (case 2) Other manifestations of toxicity of phenylbutazone were present in four of the six patients

Pathological studies showed a toxic hepatitis, acute in the patient in case 1, less acute in the patient in case 2 In both cases, the hepatic lesions were characterized by cellular necrosis and portal inflammation in which polymorphonuclear leukocytes were fairly prominent The pathology differed from that of viral hepatitis in that the inflammatory reactions was primarily about the fine portal radicles and the hepatocellular injury appeared less marked Sections of the liver obtained from the patient in case 6, 10 months after the onset of hepatitis, showed a toxic cirrhosis Although this might follow any severe hepatocellular injury, its relationship with the administration of phenylbutazone cannot be ignored It is concluded that phenylbutazone is potentially hepatotoxic, it follows, therefore, that hepatitis is another possible hazard in the therapeutic use of this drug

655 Sutter St (Dr Engleman)

Data Concerning Patients with Hepatitis, Which Followed Ingestion of Phenylbutazone

Case No	Sex	Age Yr	Primary Diagnosis	Daily Dose of Phenylbutazone Gm	Days of Therapy	Days Between Start of Therapy and Onset of Jaundice	Other Manifestations of Toxicity of Phenylbutazone	Histological Findings	Result
1	F	78	Degenerative joint disease	0.8	40	40 (dark urine noted 10 days earlier)	Thrombocytopenia	Acute toxic hepatitis 20 days after onset of jaundice	Death in 20 days due to myocardial infarction
2	F	40	Bursitis	0.6	2½	13	Emesis duodenal ulcer	Subacute toxic hepatitis 27 days after onset of jaundice	Recovery in 12 wk.
3	F	62	Painful shoulder	0.8	22	22	Morbilliform rash leukopenia		Recovery in 4 wk.
4	F	63	Degenerative joint disease	0.6 0 4	12 5	25	Morbilliform rash		Recovery in 3 wk.
5	F	55	Degenerative joint disease	0.3	6	6			Recovery in 15 wk.
6	F	60	Degenerative joint disease	0.6 0.8	12 10	22		Toxic cirrhosis 40 wk. after onset of jaundice	Portal obstruction hepatic coma and death in 40 wk

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7 Steinbrocker O and others Phenylbutazone in Therapy of Arthritis and Other Painful Musculoskeletal Disorders J A M A 150 107 (Nov 15) 1952 Kuzell and others [4]

Tuberculous Meningitis—Three factors contribute to the unsatisfactory results that have been obtained in the treatment of tuberculous meningitis during the streptomycin era mechanical obstruction of the circulatory channels of the cerebrospinal fluid by tuberculous exudate the inability of antimicrobial agents to penetrate avascular tissue and reach tubercle bacilli buried therein, and the necessity of prolonged intrathecal therapy that may, of itself produce local obstructions in the subarachnoid space by repeated irritation and trauma of the meninges All the newer measures devised to counteract these effects—namely, anticoagulants, intrathecal injection of tuberculin, fibrinolytic enzymes and neurosurgical procedures—have met with equivocal success—S J Shane M D., and Clifford Riley, M B., Ch B., Tuberculous Meningitis Combined Therapy with Cortisone and Antimicrobial Agents *The New England Journal of Medicine* Nov 19 1953

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CEREBELLAR SIGNS

Robert Wartenberg, M D , San Francisco

As there are pyramidal signs that indicate disease of the pyramidal tract, so are there cerebellar signs that indicate disease of the cerebellum and its connections While such cerebellar signs are numerous, many of them become manifest only when there is a marked functional defect of the cerebellum When classical signs are evident, there is no need for special tests, the following signs may, however, reveal a cerebellar deficit in patients without obvious functional impairment or even without referable complaints Patients with cerebellar lesions have been observed in whom these cerebellar signs were unmistakably present, however, until they have been rechecked on a large scale the last word on their differential diagnostic value cannot be spoken

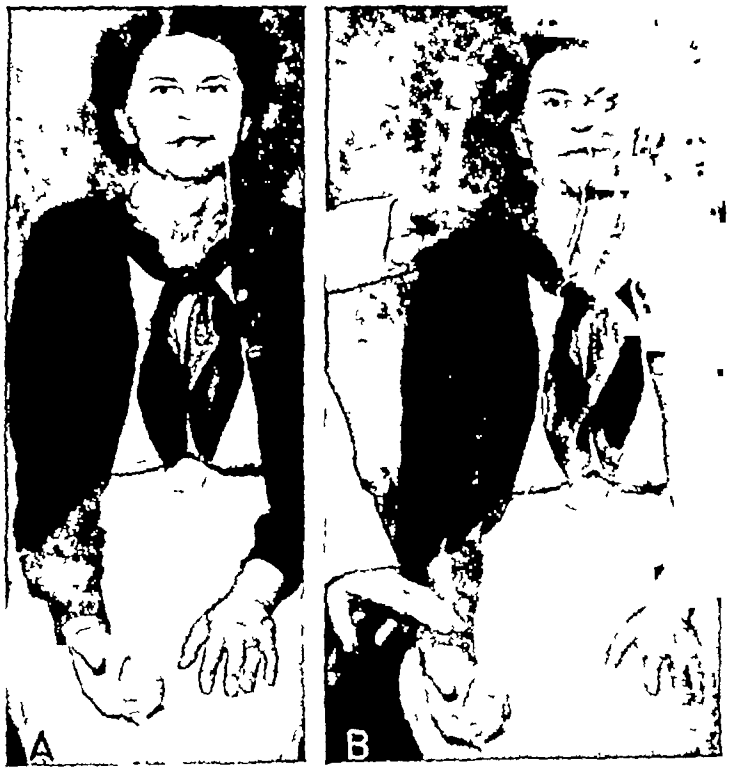

Fig 1 —*A*, normal finger-to-nose test *B*, finger to-nose test performed against resistance Note intention tremor and hypermetria

ATAXIA

Ataxia Against Passive Resistance —Examination for cerebellar function usually begins with the finger-to-nose test The patient allows his arms to hang loosely at his sides He is then asked to raise one arm slowly and to touch his nose with the tip of his index finger The normal person performs this movement in a direct line The manner in which some patients with multiple sclerosis, for instance, perform this test is familiar to all Action starts normally, but increasing tremor develops as the finger approaches the nose The finger finally comes to rest somewhere in the neighborhood of the nose In such cases the marked cerebellar dysfunction usually becomes manifest in all casual movements of the patient, and special tests are hardly necessary However, in cases in which disturbance of the cerebellum must be assumed on other grounds the finger-to-nose test may be performed normally The question then arises how the finger-to-nose test can be reinforced There are methods to reinforce reflexes the quadriceps reflex, for instance, by Jendrassik's maneuver or by slight innervation of the quadriceps muscle The following method to reinforce the finger-to-nose test may make latent ataxia manifest even when there is no clear-cut clinical evidence of cerebellar dysfunction The patient performs the finger-to-nose test against slight passive resistance A rubber band is placed around the patient's wrist, and one end, held by the examiner, is pulled gently as the patient performs the finger-to-nose test In a still simpler version, the examiner puts his fingers on the volar surface of the patient's forearm and exerts slight resistance while the patient moves his arm toward his nose The ataxia then becomes manifest (fig 1) In figure 1*A* the patient performs the finger-to-nose test normally, as clearly shown by the light-tracer In figure 1*B* the same movement is performed against the resistance of the examiner, who has placed his fingers on the patient's forearm The light-tracer shows intention tremor and hypermetria The patient fails to touch her nose and touches her brow instead This case is one of olivopontocerebellar atrophy at a very early stage Latent ataxia may similarly become evident in the lower extremity when the leg is moved against passive resistance

Ataxia of the Lower Legs —With the following sensitive test ataxia of the lower legs can be seen earlier and is more easily demonstrable and more conspicuous than with the time-honored Romberg test The patient, lying prone, is asked to flex his legs at the knee and to keep them vertical In the presence of a lesion of the pyramidal tract, the affected leg tends to drop, if there is a severe pyramidal or lower motor neuron lesion, the lower leg drops instantly like dead weight A normal person can hold his lower legs steady or with minimal oscillation in this vertical position With the slightest ataxia, the light-tracer shows marked unsteadiness of the lower legs (fig 2) By this test not only cerebellar ataxia but ataxia of any origin can be demonstrated early and very clearly In tabetic ataxia of the lower legs the oscillation of the legs is particularly marked The static ataxic movements of the legs as shown by this test are more extensive than the swaying movements of the body as seen in the Romberg test

DEVIATION

Arm Deviation —In a simple test for arm deviation the patient, standing or sitting, stretches his arms horizontally forward He is asked to keep them still and to close his eyes On the affected side the arm slowly deviates outward In unilateral disease this deviation is constant, even when the test is made repeatedly The sign is not absolutely pathognomonic for cerebellar disease If there is such deviation the cerebellum may be involved, but not necessarily so, deviation may be absent when the cerebellar nuclei but not the cerebellar hemispheres are involved The importance of an abnormal

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From the Department of Neurology, University of California School of Medicine finding in this test is that it may alert the examiner to a wider search for organic disease Figure 3 illustrates the arm deviation This is the same patient with olivopontocerebellar atrophy who showed intention tremor and hypermetria only when the finger-to-nose test was performed against resistance (fig 1)

Leg Deviation—In unilateral disease of the cerebellar hemisphere not only the arm but the leg as well shows a tendency to deviate outward The patient, sitting on a chair, is asked to lift both outstretched legs and to hold them steady (fig 4*A*) He is then asked to close his eyes When the test shows abnormality, the leg on the affected side slowly deviates outward The patient is unaware of this movement. Figure 4*B* illustrates the outward deviation of the left leg This patient with chronic cerebellar tremor also showed outward deviation of the left arm

ABDUCTION

Abduction Tendency of the Arms—It is physiologically correct to say that in cerebellar disease there is a certain general tendency of the extremities toward spontaneous abduction The typical stance of the patient with cerebellar disease, legs wide apart and arms abducted, may not be due completely to the requirement for balance but, in part, to the spontaneous tendency toward abduction, which is particularly marked in the arms The best technique to demonstrate this is the following test The examiner faces the patient, who is asked to allow his elbows to touch his sides with his forearms held horizontally in front of him The index finger of both hands are held outstretched, parallel, and close together, the other fingers are bent. The examiner holds his own index fingers at the same level as the patient's, but about 10 in (25 4 cm) apart (fig 5*A*) The patient is then asked to draw his hands slowly apart and bring his fingertips opposite those of the examiner This is done first with the patient's eyes open, then with the eyes closed With open eyes, the maneuver is performed more or less accurately (fig 5*B*) With closed eyes, a normal person will not make any appreciable error in gauging distance In the presence of a cerebellar lesion, however, the patient constantly moves both hands beyond those of the examiner, overshooting his mark. When the test is repeated the cerebellar patient overshoots the mark by increasing lengths (fig 5*C*) It is essential that this test be repeated again and again Only continual overshooting may be regarded as an expression of cerebellar dysfunction

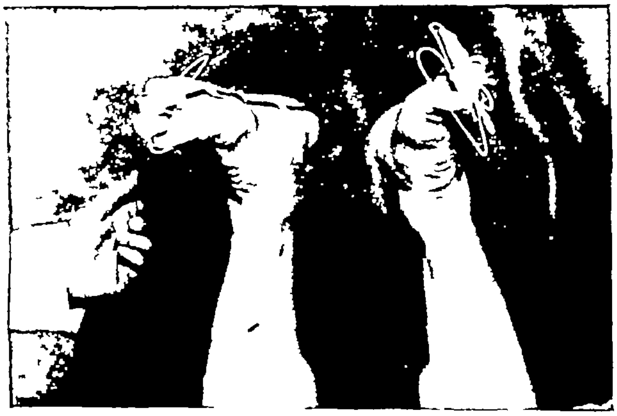

Fig 2—Ataxia of the lower legs demonstrated by light-tracer

Abduction Tendency of the Legs—The patient in figure 6 is a young man with marked signs of multiple sclerosis, including cerebellar ataxia of the lower extremities The lower legs of the patient, who is lying prone on the examining table are brought to a vertical position either actively or passively In this position they move sideways immediately The knees remain in place

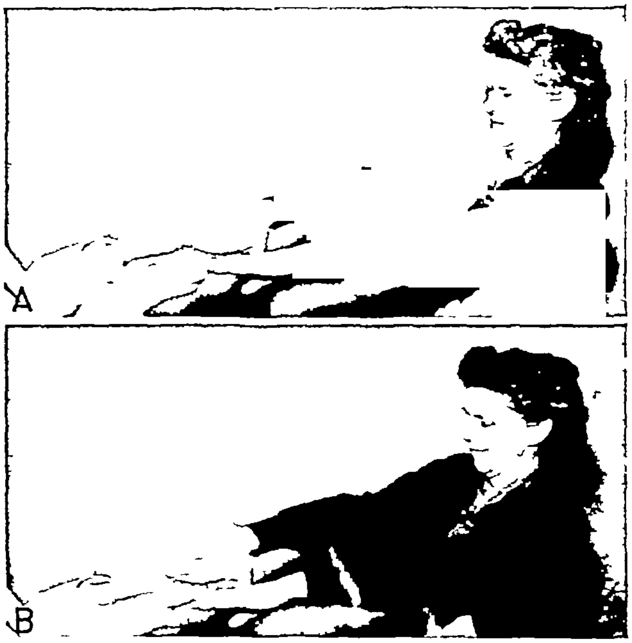

Fig. 3—Arm deviation *A* position at beginning of test. *B* position at end of test. Right arm deviates outward when the patient closes her eyes

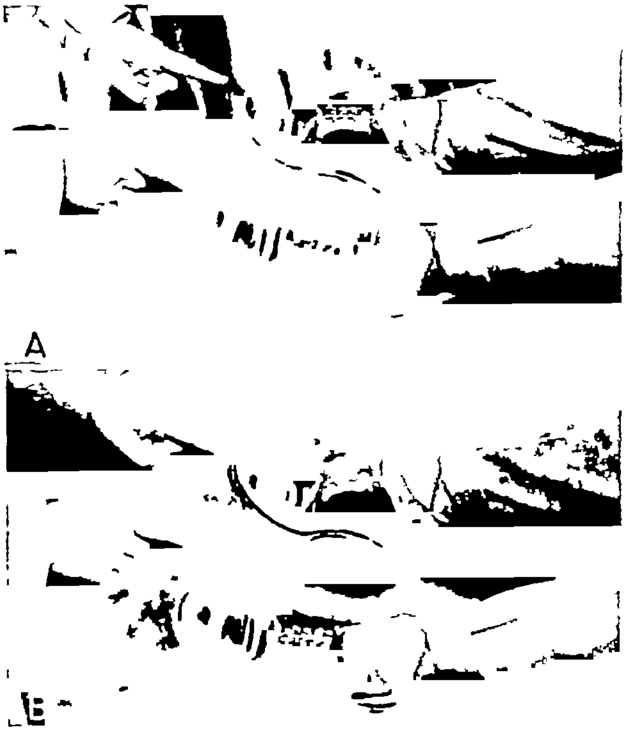

Fig. 4—Leg deviation. *A* position at beginning of test. *B* position at end of test. Left leg deviates outward when the patient closes his eyes

Abduction occurs in a stereotyped manner on repeated examination The movement is in contrast to that seen in pyramidal or lower motor neuron lesions, in which the legs extend and fall straight downward The sidewise movement of the legs in the presence of a cerebellar lesion is in conformity with the general tendency toward abduction in patients with cerebellar disease

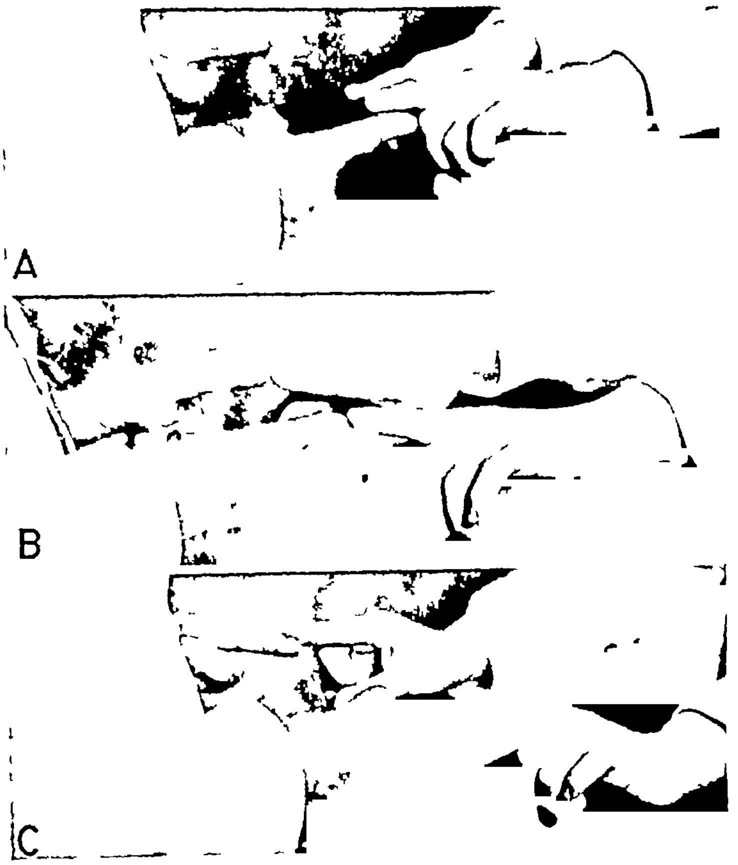

Fig 5 —Abduction tendency of arms *A* position at beginning of test *B* with the patient s eyes open the abduction maneuver is performed correctly *C* with his eyes closed, the patient overshoots his mark

PENDULOUSNESS

Pendulousness of the Arms —It is universally known that in paralysis agitans (Parkinson's disease), a typical extrapyramidal disease, the degree of pendular movement of the arms usually seen in walking is diminished In slowly developing, unilateral paralysis agitans this diminution constitutes a very early and valuable differential diagnostic sign Less well known, however, is the established clinical fact that pendulousness of the arm is also diminished in homolateral disease of the cerebellar hemisphere [1] This diminution is understandable physiologically, pendulousness of the arms in walking is not purely mechanical but is a complicated synergetic movement, and it is diminished or lost in cerebellar diseases, in which asynergia is the most outstanding feature In tumor of the cerebellopontine angle with homolateral cerebellar signs, this diminution of pendulousness of the arm is so often seen and is so important a sign that it must be regarded as one of the striking clinical features Oddly enough, it is not even mentioned in Cushing's [2] classical monograph on tumors of the auditory nerve Thus, if a patient shows a diminution of the pendular movement of one arm, this does not invariably mean that he has paralysis agitans, he may have a homolateral cerebellar disease The distinction between a diminution of the pendulousness of the arm due to paralysis agitans and that due to homolateral cerebellar affection is easily made The physiological mechanism involved in these two conditions is completely different

In paralysis agitans pendulousness of the arm diminishes because of rigidity Without rigidity there is no paralysis agitans The usual examination of muscle tonus of the arm on passive movement easily shows this rigidity, the shoulder-shaking test is also useful The examiner places his hands on the patient's shoulders and moves them to and fro with brisk alternate jerks The range of arm-swinging is diminished on the side of the paralysis agitans This diminution is also easily shown as follows The patient, his feet separated, bends forward from the hips and allows his arms to dangle loosely without touching the trunk The examiner applies an equal push to both arms simultaneously, and from the swinging time and range he can easily ascertain whether muscle rigidity exists and on which side Quite different is the physiological mechanism in cerebellar disease, in which diminution of pendulousness on one side is due not to rigidity of the muscles but to dyssynergia, which is the dominant feature of cerebellar disease When the patient walks, the arm muscles do not work synergically with other muscles of the body There is no rigidity in cerebellar disease, on the contrary, there may be hypotonia This lack of rigidity can easily be shown by the tests mentioned above In the shoulder-shaking test both arms move to equal range, or this range may be even greater on the affected side When the patient bends forward lack of rigidity can be shown by the normal, equal swinging of both arms

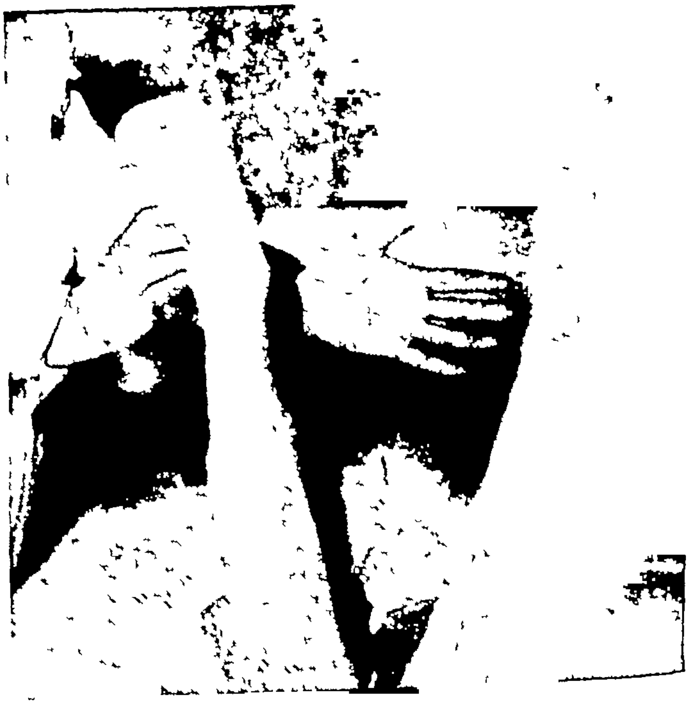

Fig 6 —Abduction tendency of legs The patient is prone with lower legs flexed The test shows a constant tendency toward abduction of the lower legs

Observing the swinging of the loosely hanging arms in a patient who is bent forward is helpful in diagnosing other conditions as well as in distinguishing a cerebellar

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1 Wartenberg, R Ein Kleinhirnsymptom Deutsche Ztschr f Nervenh **116** 145, 1930, A Cerebellar Sign, J A M A **112** 1454 (April 15) 1939

2. Cushing, H Tumors of the Nervus Acusticus and the Syndrome of the Cerebellopontile Angle, Philadelphia, W B Saunders Company, 1917

from a parkinsonian disturbance of one arm When there is atrophy and hypotonia of the shoulder muscles, the affected arm swings longer and more widely This is a completely objective and valuable sign

Pendulousness of the Legs—It is astounding how much information one can gather from the simple observation of pendulousness of the legs The patient sits on the examining table, his legs hanging loosely, the legs are lifted passively and allowed to swing In paralysis agitans the swinging time is diminished very early and very markedly In pyramidal lesions and in hypertonia in general, the swinging deviates from the sagittal plane, and the movements are more circular Any disease, wherever located, that decreases the tonus of the knee muscles increases the swinging time Increase of swinging time caused by cerebellar hypotonia occurs in cerebellar disease, however, cerebellar hypotonia does not increase the swinging time as much as does a peripheral lesion One should not expect too marked an increase of pendulousness in patients with cerebellar lesions However, in cases of thrombosis of the posterior inferior cerebellar artery with cerebellar signs the increase of pendulousness on the affected side has been observed quite clearly

TREATMENT OF SOFT TISSUE TRAUMA OF THE FACE

Frank Masters, M.D , Nicholas Georgiade, D D S , M D , Charles Horton, M D
and
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In this modern, mechanical era, soft tissue injuries of the face are becoming more frequent. Physicians are daily faced with the problem of reconstructing mutilating lacerations from flying glass, avulsions from twisted steel, and abrasions filled with grease and dirt from the highway or roadbed Such injuries demand meticulous care, for the penalty of inadequate management is visible and often grotesque deformity, with its inevitable physiological and psychological consequences When life is threatened by the magnitude of injury the careful reconstruction of severe facial trauma can, and should, be temporarily set aside while the general physical condition is stabilized[1] Deformity is accepted as a necessary evil, with the realization that reconstruction can be done at a later date In most instances, however, when the facial injury is of primary concern, the final result of treatment is due entirely to the surgeon's adherence to the time-tested principles of wound management.[1a]

MECHANICAL INHIBITION OF WOUND HEALING

The care of wounds and the many facets of wound healing have always been of paramount interest to the surgeon The role of infection in the delay of healing and the production of dense and deforming postoperative scars is well known The widespread use of antibiotic therapy, coupled with the relative immunity of the face to its normal oral and surface flora, lessens the problem of infection in facial wounds Much has been written about the effects of age, general physical condition, and nutritional and hormonal imbalance on the healing wound These factors are of little importance in the immediate therapy of facial trauma unless they contraindicate surgical repair, the medical correction of the infirmities of age and the protein depletion of nutritional and hormonal imbalance belongs primarily in the postoperative period There are, however, certain purely mechanical factors that play a most important role in the healing of the wounds and must be kept in mind constantly during surgical therapy

Devitalized Tissue—Every traumatic wound has a varying amount of destroyed tissue This includes skin and subcutaneous tissue and, if the injury is severe, muscle, tendon, and bone If not removed, this tissue acts as a foreign body to interfere mechanically with wound healing and also becomes an ideal culture medium for pathogenic bacteria

Foreign Bodies—The presence of any foreign body will slow the reparative process In many injuries it is difficult to remove all the foreign bodies, but every effort should be made to remove all that are readily available Unless this is done, the body tends to cast off this extraneous, foreign material with production of unsightly scarring

Hematoma—One of the commoner mechanical inhibitors of wound healing is the subcutaneous collection of serum or blood This may, from pressure alone, cause venous thrombosis and a delay or failure of tissue union A hematoma may also organize and degenerate into a fluid-filled, cystic mass that requires surgical removal of the cyst wall Hemostasis should be absolute to prevent mechanical interference with the healing of a traumatic facial wound

Dead Space—In large avulsing wounds the loss of subcutaneous tissue acts as a deterrent to wound-healing This open space rapidly fills with a serous exudate, which is an ideal culture medium and also prevents the raw-surface-to-raw-surface opposition so necessary for firm healing

Tension—Mechanical tension at the suture line is one of the commonest causes of wound separation and is second only to infection as a cause of postoperative keloid or hypertrophic scar formation The sutures act as so many tourniquets, strangulating the surrounding soft tissue and preventing the process of repair If a wound cannot be closed without undue tension, some form of resurfacing procedure is essential

Trauma—All too often the physician himself mechanically interferes with the normal processes of wound healing The soft tissues, particularly those of the face,

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From the Division of Plastic and Oral Surgery the Duke University School of Medicine and Duke Hospital

[1] (*a*) Young F The Care of Soft Tissue Injuries New York State J Med 43 1521 1526 1943 (*b*) Altemeier W A Treatment of Fresh Traumatic Wounds, J A M A 124 405-408 (Feb 12) 1944

are extremely susceptible to rough treatment Gentleness must be the watchword of reconstruction if the postoperative result is to be acceptable The use of small instruments and small suture material, care in hemostasis, and minimal handling of the traumatized tissue will be more than justified by the postoperative appearance

GENERAL PRINCIPLES OF WOUND THERAPY

The surgical approach to acute traumatic lesions of the face is usually identical to that applied to soft tissue trauma elsewhere on the body There are certain specific pitfalls and dangers, which will be discussed later, but the general principles of treatment remain the same for any soft tissue wound A brief review of these principles is necessary before the specific variations can be noted

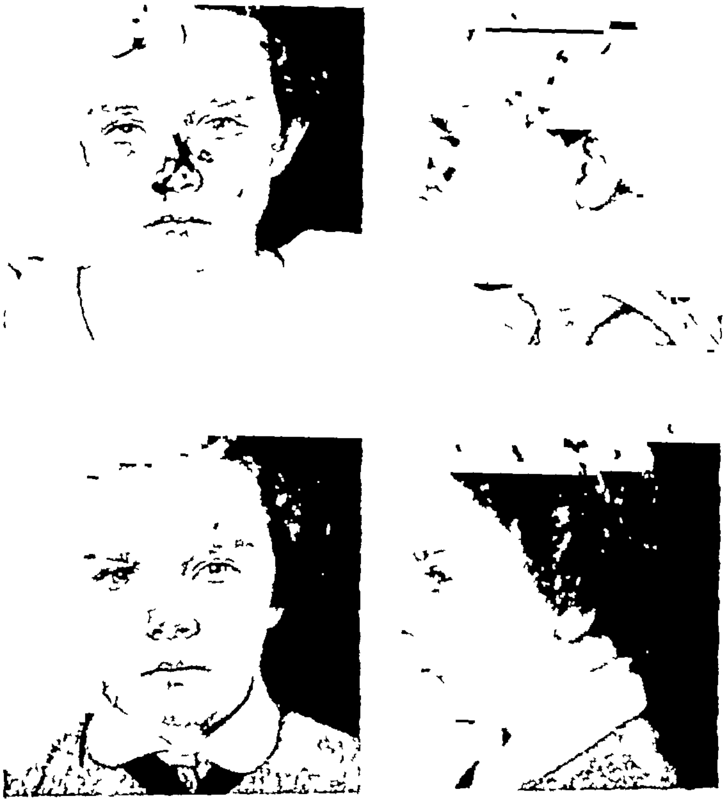

Fig 1 —Above, a 7-year-old girl who fell from a bicycle, striking the license plate of a parked car, 18 hours prior to repair The laceration of the nose involved the nasal cartilages and nasal bones The wounds were closed in layers with interrupted sutures of 000000 silk after total wound excision Below, postoperative photographs taken six weeks after primary repair

The ideal aim of surgical therapy of soft tissue trauma is to convert the accidental lesion into a clean surgical wound and then repair it In this way the mechanical factors that inhibit or prevent wound healing can be avoided While the creation of a surgical wound is not always possible, certain rules of therapy will closely approach the ideal if carefully and conscientiously followed

Cleansing —Proper cleansing of a traumatic wound is essential Many bacteriostatic and bacteriocidal agents enjoy widespread use as "mild" antiseptics, yet any agent powerful enough to destroy living bacteria may also traumatize the raw surface of a wound Routine use of antiseptics within the wound is to be condemned, although these same antiseptics may be valuable in the preparation of the surrounding, intact skin All traumatic wounds should be irrigated thoroughly with isotonic sodium chloride solution to cleanse the wound mechanically After thorough irrigation, the wound can be protected by sterile gauze and the surrounding skin cleansed with soap and the antiseptic of choice

Débridement —The second step in the general care of soft tissue wounds is widely advocated but rarely practiced The entire purpose of débriding a traumatic wound is to convert it into a clean surgical wound, yet all too often either the press of time or fear of creating additional deformity leads to the mere trimming of jagged, contused skin edges and removal of bits of fat, muscle, and bone that are obviously no longer viable Total wound excision would perhaps be a better term for the correct procedure, since the word débridement has been associated with halfway measures In many instances total wound excision is not only possible but preferable The conversion of an irregular laceration to a simple, straight line gives a greatly improved final result, both functionally and cosmetically If important anatomic structures are involved, total wound excision is not always practical, but débridement should still be thorough and as complete as possible

Closure —The principles of closure of a traumatic wound are essentially the same regardless of the part of the body involved Every attempt should be made to obtain a careful layer-by-layer closure The best results are obtained by a meticulous approximation of all wound edges, using small suture material and small instruments

Dressings —The postoperative dressing of the traumatic wound is almost as important as the original surgical repair A good initial result can be preserved or destroyed by the dressing care a wound receives A dressing should not only protect the sutured wound from external contamination but also promote healing by immobilization of the entire area Putting injured tissue at rest increases its rate of healing, this is best done by a careful and adequate postoperative dressing Immobilization can be accomplished by either a bulky dressing, which mechanically limits motion in the entire area, or localized splinting with plaster of Paris or collodion Adequate immobilization also adds to the patient's comfort, since excessive motion of any injured area is painful, and obviates excessive scar tissue formation One of the commonest defects in dressing care is attributable to the surgeon's natural curiosity It is a temptation to change dressings often just to see "how things are doing" The motion and mechanical irritation associated with frequent dressing change prolongs healing, adds to the patient's discomfort, and may increase postoperative scarring Unless there is some specific indication such as pain, swelling, unexplained fever, or tenderness, there is no logical reason to change a comfortable dressing before removing the cutaneous sutures

ADDITIONAL CONSIDERATIONS IN ACUTE FACIAL TRAUMA

The therapy of acute facial trauma depends not only on the strict application of the general principles of wound healing and wound management but also on the elapsed time from injury to treatment, the type of injury, and the structures involved Every traumatic wound of the face must be considered contaminated[2], however, the mere fact that contamination is present does not mean that the wound is infected A wound should not be considered infected until pathogenic organisms have invaded the normal, uninvolved tissue beyond the confines of the original area of trauma[3] If treated properly before this invasion occurs, a contaminated wound heals as readily as one made surgically Many authors in the past felt that wounds of the face could not be primarily reconstructed if more than six to eight hours had elapsed since injury, but the use of antibiotic therapy, coupled with the excellent blood supply and relative immunity of the soft tissues of the face, has now lengthened the period of bacteriological safety (fig 1 and 2) Wounds may be left open as long as 24 hours, if the patient's general condition forbids earlier specific therapy, and primary surgical reconstruction then carried out, with atraumatic care of contaminated tissue helping to prevent the wide dissemination of pathogenic organisms If reconstruction within a reasonable period of time is prevented, or if at the time of repair there is clinical evidence of localized infection, facial wounds may be allowed to heal secondarily, and the deforming scars may be revised when all evidence of infection has subsided and healing is complete The treatment of soft tissue injuries of the face also depends on the type of injury These may be classified into separate clinical categories, each with its own therapeutic variations

Abrasion —This is the commonest and simplest of all soft tissue injuries By definition, the wound does not penetrate the entire thickness of the skin, though it may be extensive, enough epithelial elements are present in hair follicles and dermal appendages to insure primary healing if the wound is handled properly The main danger associated with abrasions of the face is the disfiguring traumatic tattoo Carbon particles such as gunpowder, road dirt, or grease may remain permanently imbedded in the dermis When epithelialization is complete, this foreign material gives a bluish discoloration to the skin that remains as a permanent disfigurement unless surgically removed (fig 2) Abrasions of the face are treated by thorough cleansing and irrigation with large amounts of sterile saline solution If pigmented foreign material remains, it should be removed with a soft brush or carefully picked out with the point of a scalpel The latter procedure may be time-consuming and tedious, but the results are well worth the trouble When the wound is clean it should be covered by a simple dressing of petrolatum gauze Epithelialization proceeds rapidly, and, unless the dressing is continuously disturbed and epithelium is destroyed, healing takes place with little or no residual scarring

Contusions —The contused injury, a very common type, is the result of blunt force The surface epithelium is not broken, but instead the force is transmitted into the subcutaneous and deeper structures and ruptures the underlying blood vessels Hematoma develops rapidly and, by pressure alone, may devitalize the overlying sk Treatment is the prevention of hematoma formation the acute phase a simple compression dressing is sufficient If the hematoma has already formed, however it must be removed either by aspiration or by evacuation

Lacerations —The next commonest traumatic injury of the face is the laceration. It may be the result of a sharp instrument such as glass, but often there is an associated element of contusion or abrasion, particularly in the extensive injuries There may be extensive devitalization of the skin, subcutaneous tissue, and muscle Nerves may be severed and deeper structures involved with associated loss of function The treatment of lacerations of the face is often time-consuming All wounds should be irrigated gently with saline solution and then protected with gauze while the surrounding skin is cleansed with a mild, colorless antiseptic Facial wounds should be thoroughly explored for foreign bodies, and traumatized skin and devitalized deeper tissue débrided Small straight and curved lacerations can be excised completely and converted into surgical wounds (fig 3) Extensive wounds often cannot be excised because of the involvement of important [illegible] ctures but debridement should [illegible] as thorough [illegible] When debri[illegible]ent

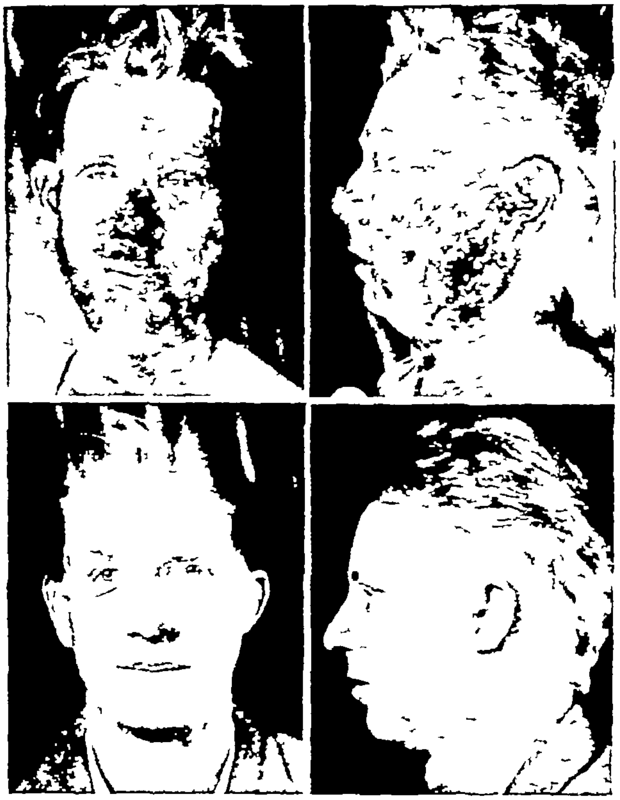

Fig. 2 —Above extensive avulsing injury of the face following accidental dynamite explosion There are extensive abrasions and traumatic tattooing of the entire face as well as contusions of the ear and eyelids The patient s general physical condition did not allow primary reconstruction until 22 hours after injury Below the patient one year after careful and complete débridement and primary closure Total wound excision was not feasible as it would have necessitated sacrifice of the facial nerve. Powder and dirt was removed with a soft brush and a pointed scalpel

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2. B Treatment Skin and S
Tissues Obs 2
3 (a) Principles Plastic Sur
more Company (b) B

THE DILEMMA'S HORNS

BASIC SCIENCE AND THE CLINICIAN

CHAIRMAN'S ADDRESS

Irvine H Page, M D , Cleveland

The dilemma, so called from the resemblance of its presenting bony parts to an archaic and discarded Greek letter, is a widely distributed, undomesticated, and sometimes ferocious creature One reads and hears frequently of persons who have been caught on the horns of one The species I would discuss is the common dilemma of medicine It has a ferocity all its own On one of its horns rests, uneasily, basic science and on the other, confidently, clinical medicine, the dilemma relates the two

THE PROBLEM

I suppose most younger clinicians are only vaguely aware that bedside medicine and basic science have for years wondered what each had to do with the other Most of the older ones think basic science at least a doubtful part of medicine and act as though it were a menace, with no other purpose than to obfuscate the practical management of patients Basic scientists in turn consider clinicians woolly minded but amiable souls who want to do research in absentia Somehow, also, the teaching of basic science and the practice of research have become so intertwined that many trustees of medical schools view both as an unnecessary burden on the already burdened budget of the schools Nobel prizes in the most basic of basic sciences are being won in hospital laboratories, and yet nobody has decided either how to support these investigators or, for that matter, even what to call them The specialty board examiners add to the din by requiring students to answer some pretty searching questions concerned with basic science, many of which most practicing physicians of an older vintage could scarcely answer The surgeons want basic science tailored to what they believe their needs—a basic science that seems to be something quite different from the ophthalmologists' or the internists' variety All of these groups have concrete ideas about what is best for their specialty Since physicians rest uneasily on the horns of the common dilemma, the nature of the beast must be more closely examined

The problem seems to have been forced on physicians by (1) the phenomenal growth of science, on which the practice of medicine is based, (2) the growing complexity of clinical medicine itself, (3) the great growth of interest in, and recognition of the importance of, research, (4) the positive chemotactic action on scientists of the large amounts of money currently available for medical research

Passing from one good and convivial dinner to another, one likes to think one can shake off the whole problem of the relationship of basic science and clinical medicine and go back to training physicians with no further nonsense, good practical physicians who give the right pills and get patients well Along with the gray dawn of morning comes the realization that the basic science problem just "hasn't shook " I should first make it clear that when I refer to basic science I do not necessarily mean the "laboratory" in its usual sense Too often the test tube has come to symbolize a laboratory test with its clinical interpolation rather than the broad connotation of the principles of basic science This is not a discussion of the "laboratory" versus the "bedside "

STRUCTURAL PRINCIPLES

All physicians had to study organic chemistry once Hundreds of thousands of compounds have been synthesized since early in 1813, and yet, as a group, the organic chemists show no signs of being unduly bewildered by this haphazard constellation of complex organic structures This is due to the fact that certain structural principles were adopted and adhered to relatively early, and, indeed, documented in that most remarkable set of books known as "Beilstein," which provide the guidelines from the "basic" knowledge to the "practical" production of compounds The transition was smooth because only seldom did the notion of a division of their discipline into "basic' and "operational" occur to anyone In contrast, medicine grew up plagued with departmentalization, which has erected barriers to the free flow of knowledge, and, worse, it has developed no organizing principles comparable with those of the organic chemist's with which to find one's way among the clutter of facts Like a juggler, a physician is forced to keep as many facts as possible whirling around in his head and not drop too many during his act Unfortunately, as the reflexes get older, the juggler finds it increasingly difficult to keep the facts he already has, much less add more to the swarm My professor of organic chemistry at Cornell, Dr Orndorff, once told me it was not how much organic chemistry I knew that counted but how much I knew about where to find what I wanted to know

But medicine needn't continue its wastrel ways Into medical teaching can be introduced organizing principles that will take care of many current difficulties Medical knowledge can be systematized so that, starting with basic components and organizing them, a structure results that can be analyzed in terms of the same components and principles The phenomenal growth of organic chemistry was made possible by early recognition of the high importance of the basic units—carbon, hydrogen, oxygen, and nitrogen Dissimilar compounds became analyzable in terms of these basic units By recognizing the organizing forces of valency, molecular size, shape, and position, resonance and such, the broad pattern of interrelationship of organic compounds was discernible

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From the Research Division of the Cleveland Clinic Foundation and the Frank E Bunts Educational Institute

Read before the Section on Experimental Medicine and Therapeutics at the 103rd Annual Meeting of the American Medical Association San Francisco June 23, 1954

AN EXAMPLE

The basic components of medical knowledge are water, electrolytes, oxygen, lipids, proteins, and carbohydrates With organizing principles, working through certain mechanisms, the animal body can be compounded of these, and, in these terms, it can also be analyzed Let me take an example from the routine of medical practice A patient is suffering from extensive arteriosclerosis for which methods neither of diagnosis nor treatment are known How does the clinician start thinking about the disease at all, to decide what to do and what not to do? As I would have it, the principle basic elements concerned are lipids and proteins derived from food (nutrition) and from endogenous synthesis (biochemistry-enzymology) The lipids become organized into lipoproteins (physical chemistry) and are transported across blood vessel walls where they may meet with obstruction because of the structure of the vessel (histology-anatomy), transport is also influenced by the kind of filter bed (heredity-anatomy) and lateral arterial pressure (physiology) Intramural capillary hemorrhage (pathology) and turbulence in the blood column at sites of vessel branching or anatomic abnormality, such as patent ductus arteriosus (biophysics), may predispose to lipid deposition Fibroblastic and ground substance reactions finally determine the fate of the vessel (embryology-chemistry) Age, sex, diet, and heredity (clinical aspects) constitute the factors conditioning the substrate on which all these operate to produce atherosclerosis

Here, in simple form, is the essence of the problem of arteriosclerosis Both the basic components and organizing lines are clear, though greatly in need of being extended New knowledge may be added without loss of simplicity It tells the clinician why dietary control limited to cholesterol alone would be unsuccessful It tells him why plasma lipoproteins are the center of so much discussion It tells him why hypertension will increase the severity of arteriosclerosis, but most important, it provides a logical approach to the solution of a problem, a problem of the sort clinicians face every hour of the day Knowledge has been drawn from both the clinical and basic sciences, but distinctions between them have not been made In short, the solution of a problem, insofar as current knowledge allows, has been achieved by reorientation of a hodgepodge of knowledge derived from widely different disciplines

FUNCTIONAL NEEDS

If the solution of problems is the primary function of a physician then it would aid him in his training if the problems the body has faced and solved were taught to him The body has functional needs, and these must be satisfied For example, the need for water is evident, and it must be kept in just the right amount Given that need, how does the body go about organizing the solution of the problem? To mention but a few of the parts of mechanism set up to control the water content of the body (1) thirst, (2) salt metabolism, (3) osmoreceptors in the midbrain, (4) pulmonary loss, (5) intra and extracellular space and their control, (6) the kidneys, and (7) the blood pressure developed by the heart All of the varied parts of the mechanism are concerned with the homeostasis of water Viewed as a whole, having developed as a part of emergence from the sea, the body has solved the problem of water conservation in an entirely logical and understandable fashion Without understanding of the basic mechanisms and why they are so contrived, the student's mind is left with little on which to build. Deviations from this orderly mechanism are caused by disease, and often the same signs appear as a result of deviations superficially quite different in nature, edema may be of renal, cardiac, or merely dietary origin, but is all part of the mechanism regulating water

Knowledge organized in such a way as to trace from the original chemical units of protoplasm the way in which nature has solved the problems of the functional needs of the body provides an intellectually economical schema that is just as usable at the bedside as in the classroom of the basic sciences By being taught to think the same way in both branches of medicine, clinical and basic, the void between the two can be bridged, the "common dilemma" has in these terms provided the means of relating the one with the other Perhaps it is well, at times, to be caught on the horns of a dilemma in order to be shown the essential oneness of problems that at the onset seem to be multiple and widely disparate

Synthetic and Analytic Channels and Their Association with Health and Illness

	Organizing Principles	+	Basic Components	(Mechanisms) →	Products
			The Well Man		
Synthesis					
Cells	Growth Reproduction Steady state Adaptation		Water Electrolytes Gases Protein Carbohydrate Lipid	Surface phenomena Osmosis Oxidation Enzymes Energy release	Protoplasm Microsomes Mitochondria Virus Genes Bacteria Protozoa
Body	Orientation Growth Reproduction Homeostasis Adaptation			Gas exchange Energy control Hormones Accessory substances Immune reactions Nervous and humoral integrative action	Mammal Invertebrate Vertebrate
Man	Biologic Philosophical Socioeconomic Cultural Religious		Mammalian organization	Integration of somatic and psychic function	The healthy man

The Sick Man

Analysis

1 Illness is disorganization at any level in the synthetic channel.

2. Diagnosis is made by analysis of the disordered functions to locate the level and channel of the disorder

3 Therapy is rational reestablishment of the disordered channel.

SYNTHESIS AND ANALYSIS

Perhaps this plan for organization of thinking may be further clarified by making it more specific This I have done in a table that shows the channels of synthesis that finally are expressed as the well man In reverse, analysis is associated with the sick man, illness is disorganization at any level in the synthetic channel The principles of organization, utilizing the basic components, through the mechanisms, yield the final products These synthetic channels operate at three levels the cell, the body, and the man Before modern methods of isotope analysis were introduced, the constant turnover and rebuilding of the body was not known It seemed a static affair, once built it remained the same, and the need for the synthetic channels would largely have disappeared With introduction of the dynamic concept, the need is, on the contrary, constant When, for example, chemical reactions involving about 16 lb (7 3 kg) of sodium chloride a day occur in the body, channeling obviously must occur Under such circumstances it takes little disorganization of these channels to produce illness

If this logical structure is accepted, the teaching of medicine becomes grounded on learning the nature of the basic components—carbohydrate, lipid, protein, gases, electrolyte and water—how they are organized through different stages of complexity into the human body, how nature has solved the problems of the body's functional needs, and finally how they are deviated from the normal by disease At the bedside, clinical medicine becomes the solution of problems in these same terms The anathema of further intellectual departmentalization, the miserable current failure of integration of basic science and clinical medicine, and the growing and altogether overwhelming complexity of the factual aspects of medicine may so be dissipated While I plead for the union of basic science and medicine, by the provision of this logical inner structure to uphold and allow the union to grow, those treasures of human thought and emotion that keep medicine a profession rather than a technology, should be embraced The physician must continue to be that rare combination of scientific skepticism and human compassion to be worthy of this trust

2020 E 93rd St (6)

EVOLUTION, REVOLUTION, AND BOARD CERTIFICATION—1932 TO 1954

CHAIRMAN'S ADDRESS

George M Lewis, M D , New York

Evolution plays an important role in medicine as in all other phases of life, however, changes in the medical field during the past 30 years have been so profound and so far reaching as to be revolutionary in scope In many directions this has made available methods for detection of minimal evidence of disease, the ramifications of disease processes have been more clearly defined, and many patients have been salvaged from the category of incurable The development of new methods of diagnosis, better means for prevention of disease, and of more rational, and often specific, therapeutic procedures poses a challenge to the medical profession Translation of these modern and continuing advances in knowledge to practical application has not always followed closely, since this is dependent mainly on the availability of physicians with long-term, graduate education leading to the development of special skills and of mature judgment There is, moreover, often a variation in the quality of medical care depending on the density or sparseness of population, on economic factors, and particularly on the educational status of a community This problem of providing for more even distribution of superior medical care is a major one in medicine today With these thoughts in mind it is of importance to trace the growth of specialization and the influence exerted by the specialty boards

PUBLIC ATTITUDE TOWARD SPECIALIZATION

The general public today is much more enlightened in regard to progress in medicine than their counterpart of three decades ago This is largely because of informative material in newspapers, magazines, radio, and television Some of the material is prepared and disseminated by the medical profession and by medical agencies, but much is the work of lay workers, some of whom devote their professional careers to this field Cancer, heart disease, and diabetes have been widely discussed This has resulted in a trend toward self-diagnosis and a desire to share in the decision regarding therapy The logic of certain diagnostic or therapeutic measures may be perfectly apparent to the physician, but he may meet resistance from a patient unless the measures conform to the information the patient obtains from his favorite columnist Most patients do not look for miracles from a physician, but they do expect honesty, frankness, and a modicum of skill Furthermore, they expect fewer mistakes in diagnosis and faster results from therapy if they consult someone who is devoting his entire energies to a particular field Thirty years ago the desire for specialist care was less apparent than now and was satisfied by comparatively few specialists While specialists at that time were consulted directly by patients, they were also utilized as consultants by general practitioners to assist in the diagnosis of obscure diseases and in the treatment of patients with unusual or recalcitrant disorders This approach was helpful only to a small percentage of the general public and, while of help in cases of great complexity, could in no sense be considered a definitive and permanent solution There has been a gradual realization that in medicine, as in other human endeavors, increasing knowledge must lead to particularization of effort No lawyer or engineer today could hope to master all the ramifications of his field The same holds true for a physician

RESPONSE OF PHYSICIANS

While at first specialist care in medicine was considered useful only in cases of severe, disabling, or life threatening illness and injury, it has become apparent that other less vital, but frequently troublesome, disorders also yield more readily to the expert approach Physicians, aware of their deficiencies, have increasingly sought and obtained the necessary instruction so that they might become proficient in a limited field of medicine It is of interest to note the gradual evolutionary tendency to numerical and percentage increase of specialists in the United States

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From the Department of Medicine (Dermatology) New York Hospital and Cornell University Medical College

Read before the Section on Dermatology and Syphilology at the 103rd Annual Meeting of the American Medical Association, San Francisco June 24, 1954 during the years 1923 to 1943 (table 1) The pattern was one of gradual expansion, with approximately 1,250 new specialists each year In sharp contrast, during the seven years between 1944 and 1950, inclusive, over 25,000 specialists were approved as competent by the various boards This meant that about 3,500 physicians were admitted each year to specialist category, or at approximately three times the former rate The reasons for this extraordinary condition are various It is true that the general public has demanded better medical care, not only as individuals, but also through interest in hospital centers Even in a small community there is increasingly critical appraisal of the credentials of physicians Physicians who served in the Armed Forces during the second world war were encouraged to seek additional training, either by refresher courses or in long-term training programs, by the government policy of monetary support (G I Bill of Rights) They had observed that the armed forces stressed specialist care of patients and could visualize the advantages, not only in pay, but also in the more rapid cure and over-all satisfaction from more knowledgeable handling of the injured and the ill The overwhelming demand for graduate training might be considered revolutionary, since it was a mass movement in the sense that Webster defines revolution as a "total or radical change " Since 1950 there has been a return to a gradual increase in specialists at the level of approximately 1,250 per year, although the time interval is too short to establish that this is a definite trend At this time there are approximately 155,000 physicians in active practice in the United States, this being about three-fourths of all registered physicians Over 65,000 physicians are practicing a specialty, and most of these are certified as competent by one of the specialty boards In addition there are 20,000 physicians who are "interested in a specialty " Approximately 70,000 physicians are in general practice

TABLE 1—*Approximate Number of New Specialists of All Categories Per Year from 1923 to 1954*

Period	No of Yr	No of New Specialists	No per Yr
1923-1931	8	10 400	1,300
1931 1943	12	15 000	1,250
1943-1950	7	25 000	3,560
1950-1954	4	5 000	1,250
Total or average 1923-1954	31	55 400	1,800

DISTRIBUTION OF CERTIFIED SPECIALISTS IN DERMATOLOGY

It was not too long ago that specialists were to be found in only the larger cities This is no longer true, and there are few, if any, cities in which specialists of all categories are not to be found There are 43 cities in the United States in which five or more certified dermatologists are practicing (table 2) Only 31 cities were in this category in 1947 These 43 cities have a total population of 33,747,868 (1950 census) and support 812 certified dermatologists or 1 dermatologist to 41,561 persons The remaining 116,949,493 persons in the United States have access sometimes remote, to 526 certified dermatologists or 1 dermatologist to 222,337 persons This obviously represents inadequate coverage if the same standards of dermatological care are to prevail in all sections of the country In a paper read before the Section on Dermatology and Syphilogy in 1948[1] analysis was made of the distribution of dermatologists in the United States It is of interest to compare the statistics at that time with those of five years later, and to note a substantial increase in all sections of the country The increase from 852 dermatologists in 1948 to 1,338 in 1953 is 57% The total number of specialists who had been certified in dermatology by Dec 31, 1953 was 1,573 The difference between this and 1,338 represents diplomates who were not reported in private practice in the United States in the 1953 edition of the "Directory of Medical Specialists " Whereas in 1948 there were eight states with no dermatologist, today only one state, Wyoming, is without such representation When the individual states were surveyed, it was noted that in 1948, only two states and the District of Columbia had a per capita distribution of more than 1 100 000 In table 3 it will be noted that eight states and the District of Columbia now enjoy this advantage On the other side of the ledger, there are 18 states in which the per capita

TABLE 2—*Distribution of Dermatologists in Cities with Over Five Certified Specialists (1953)*

City	No of Certified Specialists	Population (1950)	Per Capita Distribution
New York	237	7,835 099	1 33 059
Chicago	56	3,606 435	1 64 400
Philadelphia	43	2 064 794	1 48 018
Los Angeles	42	1 986 607	1 47,300
Boston	28	790,863	1 28,245
Washington D C	28	797 670	1 28 488
Detroit	22	1,838,517	1 83,568
Cleveland	22	905 636	1 41 165
San Francisco	22	760 753	1 34,579
St Louis	17	852 623	1 50,154
Pittsburgh	16	673 763	1 42,110
Cincinnati	15	500,510	1 33,367
Newark N J	15	437 857	1 29 190
Houston Texas	14	594,321	1 42 451
Baltimore	14	940,205	1 67 157
New Orleans	14	567,257	1 40,518
Denver	12	412,856	1 34 404
Buffalo	11	577,393	1 52 490
San Diego Calif	11	321 485	1 29,220
Milwaukee	10	632 651	1 63,265
Dallas Texas	10	432,927	1 43,292
Seattle	10	462 440	1 46,244
Minneapolis	10	517,277	1 51 727
Oklahoma City	10	242,450	1 24,245
Oakland Calif	10	380,576	1 38 057
Miami Fla	8	246,983	1 30 872
Indianapolis	8	424 683	1 53 085
Paterson N J	8	139 423	1 17 427
Omaha	7	247 408	1 35,344
Portland Ore	7	371 011	1 53 001
Atlanta Ga	7	327 090	1 46 727
Phoenix Ariz	7	105 442	1 15 063
San Antonio Texas	7	406 811	1 58 115
Kansas City Mo	6	453,290	1 75,548
St Paul	6	309 474	1 51,579
Albany N Y	6	134,995	1 22,499
Long Beach Calif	6	244 072	1 40 678
Syracuse N Y	5	220 067	1 44 013
Birmingham Ala	5	298 720	1 59 744
New Haven Conn	5	163,344	1 32,668
Wichita Kan	5	166,305	1 33,261
Elizabeth N J	5	112 675	1 22,535
Dayton Ohio	5	243 105	1 48 621
Total	812	33 747 868	1 41,561

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[1] Senear F E Lewis G M and Cormia F E Present Status of Dermatologic Training in the United States Arch Dermat & Syph 60 475 (Oct) 1949

distribution is less than 1 200,000, and it is in these states that the problem of providing adequate dermatological care is obviously the most pressing

From a consideration of data it would appear that a dermatologist will survive economically if he receives support from other physicians in a community of from 30,000 to 40,000 population and in many instances in even smaller centers The patient with a recalcitrant or disabling dermatosis may travel a considerable distance for help, and patients tend to gravitate to a large center of population These are factors that have not been considered, since they do not lend themselves to accurate analysis It is of interest that on many hospital staffs and in large group clinics there is need for at least one dermatologist to each 40 physicians This same ratio holds true when the number of certified dermatologists is divided into the total number of specialists certified by all the boards

TABLE 3 —*Distribution of Dermatologists by State and Geographic Divisions (1953)*

Section and State	No of Certified Specialists	State Population (1950)	Per Capita Distribution
New England			
Maine	1	913 774	1 913,774
New Hampshire	3	533 242	1 177,747
Vermont	2	377 747	1 188,873
Massachusetts	51	4 690,514	1 91,968
Connecticut	27	2,007 280	1 74,340
Rhode Island	6	791,896	1 131,982
Total	90	9,314,453	1 103,493
Middle Atlantic			
New York	319	14,830 192	1 46,489
Pennsylvania	97	10 498 012	1 108 226
New Jersey	65	4,835,329	1 74,389
Total	481	30,163 533	1 62,710
South Atlantic			
Delaware	3	318 085	1 106,028
Maryland	15	2,343 001	1 156 200
District of Columbia	28	802,178	1 28 649
West Virginia	5	2 005 552	1 401 110
Virginia	15	3 318 680	1 221,245
North Carolina	15	4 061,929	1 270 795
South Carolina	6	2,117,027	1 352 837
Georgia	12	3,444,578	1 287 048
Florida	21	2,771,305	1 131 966
Total	120	21,182,335	1 176,519
East North Central			
Wisconsin	17	3,434 575	1 202,033
Michigan	37	6 371 766	1 172,209
Illinois	82	8 712,176	1 106 246
Indiana	19	3 934,224	1 207 064
Ohio	65	7,946 627	1 122 255
Total	220	30,399,368	1 138 178
East South Central			
Kentucky	6	2,944,806	1 490,801
Tennessee	13	3 291,718	1 253 209
Mississippi	3	2,178,914	1 726 304
Alabama	9	3 061 743	1 340 193
Total	31	11,477,181	1 370,231
West North Central			
Minnesota	22	2,982 483	1 135,567
Iowa	10	2 621,073	1 262,107
Missouri	31	3,954,653	1 127,569
North Dakota	2	619 636	1 309 818
South Dakota	2	652 740	1 326,370
Nebraska	8	1,325,510	1 165 688
Kansas	14	1 905 299	1 136,092
Total	89	14,061,394	1 157,993
West South Central			
Oklahoma	13	2 233,351	1 171 796
Arkansas	4	1,909,511	1 477 627
Texas	60	7,711,194	1 128,519
Louisiana	15	2,683,516	1 178,901
Total	92	14,537,572	1 158,017
Mountain			
Montana	1	591,024	1 591,024
Idaho	1	588,637	1 588,637
Wyoming		290,529	
Nevada	3	160,083	1 53,361
Utah	5	688 862	1 137,772
Colorado	15	1,325,089	1 88 339
Arizona	9	749,587	1 83 287
New Mexico	4	681,187	1 170,296
Total	38	5,074,998	1 133,552
Pacific			
Washington	18	2,378,963	1 132 164
Oregon	9	1,521,341	1 169 037
California	150	10,586,223	1 70,574
Total	177	14,486,527	1 81,844
Total for United States	1 338	150,697,361	1 112,629

ROLE OF THE SPECIALTY BOARDS

It might be appropriate to discuss briefly the specialty boards How did they come into being? What was their purpose? What have they accomplished? Prior to formation of the certifying boards in the various specialties, there was no recognized standard to ensure the public that claims to special knowledge by a physician were legitimate The licensing requirements by the states demanded only the minimal knowledge that graduates of first-class medical schools usually had no difficulty in demonstrating, however, there was no provision to test the particular knowledge and judgment of persons who were purportedly medical specialists With the increasing numbers of physicians specializing in the various medical fields, the desirability for some regulatory scheme became self-evident Since there was no mechanism available through existing organizations, it is to the credit of specialists within the medical profession that they established voluntary examining bodies in their own fields It should be emphasized that this whole movement was and is independent and self-motivated, being established and perpetuated within the medical profession itself, and it has not been controlled by the state, by universities, or by any preexisting lay or medical organization

Development —The first specialty certifying board was the American Board of Ophthalmology, which was created in 1916 The next two boards were the American Board of Otolaryngology and the American Board of Obstetrics and Gynecology, established in 1924 and 1930, respectively The fourth board was the American Board of Dermatology and Syphilology, founded in 1932 These four boards, together with the Association of American Medical Colleges, the American Hospital Association, the Federation of State Medical Boards of the U S A , and the National Board of Medical Examiners joined together to form the Advisory Board for Medical Specialties on Feb 11, 1934 Since then, 14 other specialty boards have been organized and have been admitted to membership in the advisory board In addition, there are nine sub-specialty boards The advisory board, as its name implies, is a loosely knit body, with no power to make decisions binding on its individual members It holds an annual meeting at which timely topics currently of interest to specialists are discussed It also has the authority to admit to membership new specialty boards if such are deemed necessary The Council on Medical Education and Hospitals of the American Medical Association has cooperated wholeheartedly with both the advisory board and individual boards, to their great benefit

The various boards began as independent units and have so remained It will help to understand the functioning of a board if it is kept in mind that it is comparable to a judicial organization The board is composed of members designated from sponsoring societies Once elected, the members are responsible only to their own consciences This independence is highly desirable and obviates the possibility that a board might become a political football It should be stated that, since the members of a board have the confidence of sponsoring societies and since no individual member has more than executive power, no fear need be felt that board decisions will be biased or discriminatory The boards have found it advisable to insist on certain basic and minimal training requirements that candidates for the examination must satisfy Since conditions of practice in the different specialties often present problems peculiar to that group, it is not surprising that individual boards exercise considerable variations in their activities Moore[2] recently reviewed some of the discrepancies in requirements and in the functioning of the boards These variations in individual boards are minor, are usually based on sound reasoning, and represent the judgment of thoughtful men

Professional Standards—The boards were established to determine competence of candidates In exercising their right to establish the "ground rules" under which they could operate, they have also become a potent force in raising professional standards For instance, at times the minimal standards established by a board were higher than existed in an institution undertaking to provide graduate training This resulted either in withholding approval of the institution or in deficiencies being remedied At times, also, this led to criticism of the boards as interfering with the function of an educational body This would be true if the boards made ironclad rules with conformity to a pattern as requisite to approval The American Board of Dermatology and Syphilology, like most, if not all other boards, allows great latitude in the performance of an institution, while requiring that graduate students in that institution be given the opportunity to learn all phases of the specialty One can see how misunderstandings and nonconformity to regulations can result in friction The very nature of an examining body indicates that not all candidates will be found qualified Not all those rejected accept the decision of the board as equitable Chiefs of hospitals that have been refused approval as adequate for graduate training seldom believe the decision is motivated by clear thinking And heaven help the board with the temerity to remove from the approved list an institution that had previously qualified! In spite of these and many other difficulties, the vision of those responsible for the formation and conduct of the boards has been amply demonstrated

The boards have been criticized as responsible for the fostering of monopolistic practices One of the most frequent sources of dissatisfaction concerns the selection of staff members for a hospital when the institution requires board certification for appointment. This has resulted occasionally in unfair treatment of physicians eminently qualified but who, for one reason or another, have never been certified No one can deny that a lay board of governors of a hospital might be rightfully impressed by certification as indicating high qualification, and it is true that the onus of proof might well be on a noncertified applicant for a hospital position to demonstrate his competence However, once competence has been proved, either through long service or otherwise, discrimination against him as noncertified cannot be justified The board certificate should never be used as a weapon For details of the everyday functioning of a board, the reader is urged to read the article by Braceland and Boyd[3] Written in a humorous vein, it portrays vividly the active life and the vicissitudes of the secretary and therein the problems, great and small, that confront, and sometimes confound, the members of these organizations Recent publications by Watson[4] and by Schnabel[5] also are informative

RESPONSIBILITY FOR GRADUATE MEDICAL EDUCATION

Recent exhaustive surveys both in the field of premedical[6] and of medical[7] education indicate a wide divergence in colleges in both content and method There would appear to be a definite trend toward a "balanced education" and a strong feeling that the physician should have a broad and liberal education with less emphasis on science in the premedical years and with cultural subjects receiving more attention There is considerable agitation to shorten the total period of education for the physician No unanimity of opinion appears possible as to just when this retraction in time should occur, except that everyone concerned believes it should happen in some period other than the one in which he is personally interested Adding to the difficulty is the growing realization that, for a physician to be strongly equipped to take his place in the medical community, long-term graduate training is almost essential Hospitals and medical colleges offering graduate instruction were unprepared for the heavy demand for specialty training immediately after World War II This urgent request for instruction became a challenge to institutions that had not heretofore had experience in the field of graduate medicine This was at a time when the staffs of the undergraduate medical colleges were just recovering from the wartime accelerated program There was some hostility to the insistence by the boards that appropriate basic science subjects must be taught. Some misunderstandings arose over the implementation of these requirements The boards were occasionally accused of assuming an unreasonable or dictatorial attitude[8] In general, however, this and other actions of the boards helped materially to elevate standards and to protect graduate students fro

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Hospitals of the A M A or by many of the boards It is also true that some hospitals with no medical college affiliations are, nevertheless, able to carry out a satisfactory program, and that their graduates are able to compete favorable with those trained in hospitals closely affiliated with a medical college Basically, the reasons for existence of a hospital and of a medical college are different The primary obligations of the former are to the patient, for whom the hospital provides shelter and facilities for care and tries to attract an adequate medical staff The continuing education of the younger members of the staff is rightfully a secondary consideration On the other hand, the main function of a medical college should be to select and train medical recruits to be good physicians Medical colleges try to provide opportunities and sufficient challenging experiences so that their graduates are basically competent physicians This is becoming more and more difficult In those fortunate centers where a medical college is coupled with a hospital, the professional staffs are identical, and the preclinical departments of the medical college have the vision, funds, and inclination to cooperate fully, a superior graduate program is probably in operation There are too few such loci now available

If the trend toward specialization continues, as there is every reason to expect it will, the medical colleges cannot evade their responsibility to their own graduates to provide a program and to supervise and instruct in the specialties It is debatable whether the more general use of the graduate degree, which should indicate ability in teaching or research, will be found desirable There are, no doubt, many valid reasons, financial and otherwise, for failure of many medical colleges to assume the responsibility to graduate education With the present reduced demand for graduate training it would seem appropriate for the medical colleges to show a more active interest in this vital problem In the future they should assume the lead in the specialty movement

ECONOMICS OF SPECIALIZATION

The specialty movement has developed rapidly and spontaneously It has been erroneously blamed as responsible for some problems, particularly the rising cost of medical care In most communities the fees charged by specialists, with the exception of those in the surgical fields, are not substantially more than those of general practitioners, although they are necessarily higher than formerly This fact is not, however, the main cause of hardship Illness costs more than formerly, chiefly because diagnostic measures are more complicated and, therefore, more expensive, and because the cost of hospitalization has increased enormously Many modern drugs are expensive The charge that specialists are responsible for the economic woes of the general public, because patients have to be referred from one kind of specialist to another, has some small basis in fact This should be offset to some degree by the expected lessening in morbidity through more expert care It should be emphasized that the physician's fee is actually only a fraction of the total cost of medical care The rapid growth of group practice is a significant trend, being an answer to the demand for specialist care in smaller communities The provocative, impatient idealism of Means[9] raises many questions relating to defects in present day medicine The role of government looms large in his attempts to point the way to improvement The majority of physicians apparently feel otherwise[10] The main economic medical hazard is still the unpredictable catastrophic illness or injury that requires prolonged care and is further complicated by loss of income This, of course, is not peculiar to specialization It is an ever-recurring and fortunately rare problem the solution of which offers considerable difficulty It has been partially solved by prepaid insurance for both medical care and hospitalization Specialists, as physicians, have in the past cooperated and will always cooperate in such situations with their services donated or at reduced fees when indicated by hardship or distress The ability to provide adequate specialist care in sparsely populated communities is a difficult problem, but it should not be insurmountable It is here that planning on a county, state, or national level may be required, if the problem cannot be solved under the auspices of existing organizations

RESPONSIBILITIES OF SPECIALISTS

It is to the credit of physicians that they have been willing to undergo the additional training required by the boards in order to qualify for special recognition This has seldom been an easy assignment Small wonder, then, that the frequent reaction of a new diplomate is to throw his books into the corner and say that he is through with study forever He knows, of course, that he has only started on a program that will continue during his professional life He must either continue to study and become increasingly proficient or he will regress His duty to himself, to the profession, and to his patients is to come periodically in contact with others in the specialty and to keep abreast of new developments In addition, there is a debt to the physician's teachers to be repaid This should take two forms (1) there should be a personal, professional contribution, by research, by teaching, and by helping to organize or to staff dermatology departments, and (2) there should be support of the activities of his specialty board, the American Academy of Dermatology and Syphilology, the A M A , and other organizations, local, regional, and national in scope Active participation means regular attendance at meetings, appropriate discussion in the scientific deliberations, and the voicing of suggestions or criticisms when such seem desirable or necessary Communications are best directed to the secretary of the organization in question Rumors that are palpably false regarding the activities of a medical organization should be brought to the attention of its officers, so that further harm may be stopped

SPECIALIST MEDICINE IN THE FUTURE

With the gradual reduction in the number of general practitioners there are some communities in which it is difficult to find a "family doctor " It is, therefore, important for each physician, whether specialist or not, to qualify as family doctor Such a physician must have the confidence of a family that consults him when illness develops It is more than likely that some physicians will continue to wish to be general practitioners, caring for common disorders and acting as family physicians From all indications, however, the percentage of such physicians will continue to decline gradually

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[9] Means, J H Doctors, People and Government, Boston Little Brown & Company, 1953

[10] Doctors People, and Government, Book Review, J A M A 154 183 (Jan 9) 1954

The time would seem appropriate to banish the idea that specialists are primarily consultants Formerly, the specialist was often thought to be a standoffish, cold-fish scientist Unfortunately, there are still some specialists with a detached and perfunctory attitude of superiority and a lack of appreciation of the finer sensibilities of the patient For the most part, however, the specialist of today is a realistic, sympathetic practitioner and does his most effective work when he looks after the patient, rather than when he tries to supervise the problem with another physician At times, consultation between physicians is valuable, but usually this is when the diagnosis is in doubt, when there is some question of medicolegal complications, when long-continued therapy has been ineffectual, or when a decision may determine the life of a patient The United States is now the most fortunate nation in the world, medically as well as in many other ways, however, there is still room for improvement It is a matter of record that there are many places in the United States where specialist care of patients is the rule Most of the practicing physicians on the staffs of institutions in the larger cities, and in many medium-sized and smaller cities in the United States, confine their practice to a limited field The success of group practice in many sections of the country is further evidence that care of patients at the specialist level can be accomplished in sparsely settled communities

So far the demand for specialist care has been mostly from larger centers of population There is evidence, however, that increasingly the rural population and persons in small towns will insist that they too should be treated by specialists A patient who recently came 150 miles to New York said he did this because he noted that that was what the physicians in his community did when they required medical attention This is a period of transition and the change will no doubt require many years Indications at this time point to eventual universal specialization As mentioned previously, it would appear from analysis of available statistics that one out of 40 practitioners should be a dermatologist Since there is no agreement as to how many physicians of all categories are required to provide medical care for the United States, it is obviously impossible to do more than guess at the future dermatological requirements Nevertheless, it is evident that the saturation point has not nearly been reached In fact, the number of dermatologists at this time could be probably doubled, provided there was a proportional increase of other specialists The outlook in the next 30 years could well be 4,000 to 5,000 dermatologists, or even more as the population increases

The present agitation for the socialization of medicine is mostly due to economic considerations, but the desire of the public to receive not only adequate but superior medical care may be an additional factor Many persons mistakenly believe that in some magic way the cost will be less and the quality of medical care will improve if the government is in control It is evident that the present administration is not anxious to venture into the regulatory field, and future administrations will not have the incentive if the public generally receives the superior medical care that is available now for a minority The chief problem is to provide specialist care in sparsely settled districts The great and continuing advances in medicine must become universally and promptly available, which will require a sufficient number of specialists

SUMMARY

From 1943 to 1950 about 25,000 physicians became certified as specialists The result has been a profound change in medical practice, since from one-third to one-half of all physicians now in active practice are specialists To judge from a survey of certified dermatologists, the distribution of specialists is still uneven The highest rate per capita is found in the large centers of population, but increasingly, even in smaller cities and large towns, specialist care may be obtained It is in the rural communities and in sparsely settled areas that specialists are in short supply The continued increase in group practice and the large number of rural communities in which a hospital center has been established makes it evident that specialist care will be in time available to all sections of the United States It is apparent that this major change in medical practice has occurred concurrently with sociologic and economic problems of utmost difficulty to solve Lack of specialists may be an important factor with the rising cost of medical care as a basis for talk of socialization It is probable that if specialist medical care was more evenly distributed there would be no appreciable demand for state medicine The specialty boards as examining agencies have served an invaluable role in setting up standards of proficiency for specialists Specialists must continue to study in order to keep abreast of current progress and should support the activities of organized medicine Efforts should be made to shorten the total period of education of the physician This is increasingly important since the majority of physicians now believe graduate training to be essential in order to prepare for the demands of private practice The question is raised whether the medical colleges should not more closely integrate and supervise graduate education that should in the near future be considered of equal importance with the basic undergraduate medical course

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Ozone Toxicity —Ozone is found in the stratosphere where it is formed by the action of ultra violet light on oxygen the amount varying with the latitude and season of the year The atmospheric circulation tends to bring some of this ozone toward the surface to add to that produced by atmospheric electrical discharges Ozone concentrations near the earth s surface are normally very small being of the order of from zero to a few hundredths parts per million (Higher values reported in the past have now been shown to be due to faulty analytic methods) The presence of even these small amounts of ozone however causes relatively rapid cracking in stretched natural rubber—a test that is used for ozone detection Recently it has been shown by Haagen Smit and his group that ozone undoubtedly plays a dominant part in contributing to eye irritation crop damage haze and odor of Los Angeles smogs —H E Stokinger Ph D., Ozone Toxicity *A M A Archives of Industrial Hygiene and Occupational Medicine* May, 1954

ORGANIZATION OF A PATHOLOGICAL ANATOMY LABORATORY SERVICE

SYSTEM FOR RECORDS, STANDARDIZATION, AND RESIDENT TRAINING

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The object of this paper is to present procedures for the organization of a pathological anatomy service based on the methodology of the Standard Nomenclature of Diseases and Operations [1] These procedures have been used for the past two years It is felt that they represent a step in the direction of achieving uniformity and standardization and will facilitate research and statistical analyses of records within a given department and between several laboratories, they also facilitate the orientation and training of residents in pathology Angrist,[2] in 1946, had initially recommended the use of the nomenclature and its coding scheme for use in the pathology laboratory At present it is being used, in part, in many laboratories It is hoped that this paper will serve to popularize the use of the nomenclature as initially described for coding and filing and to make additional suggestions for its over-all usage in pathology [3]

In the past 10 years great strides have been made in achieving uniformity in hospital clinical records and files This has been possible due to the sponsorship by the American Medical Association of the Standard Nomenclature of Diseases and Operations as the reference for diagnostic terms, coding, and filing [4] To date, 4,937, or 74%, of the registered hospitals in the United States use the nomenclature clinically, and hospitals in numerous others countries have also adopted it [5] Dr A Bradford Hill [6] emphasized the need for a uniformity of nomenclatures and procedures in medicine to collect and record material, which could then be more ably used for progressive statistical evaluation The need for an ideal nomenclature may still exist,[7] but for the present the Standard Nomenclature of Diseases and Operations represents an encouraging compromise The diagnostic terms are now cross coded with the International Statistical Classification of Diseases, Injuries, and Causes of Death, which extends the usefulness of the nomenclature to international statistical problems as studied by the World Health Organization [8] The Standard Nomenclature of Diseases and Operations has been translated into Spanish and Portuguese and is being extensively used in Latin America, Canada, and Palestine, and therefore "the possibility of international uniformity in medical nomenclature is foreshadowed "[4] In this light, it is of interest that in Great Britain, the "Nomenclature of Disease" has been revised with the adoption of the basic organization of the American nomenclature with only moderate modifications of the etiological classification [9]

In surveying the records of numerous pathological anatomy laboratories, one is struck with the contrasted comparison to the uniformity of hospital clinical records Diagnostic terms, coding, and records used in the pathology laboratories differ from laboratory to laboratory and from laboratory to clinical record files in the same hospital It appears somewhat ironical that pathology, the science of medicine, should lag behind clinical medicine, the art of medicine, in the achievement of organization, uniformity, and standardization, which are qualities more related to science than to art In addition, terminology tends to differ from pathologist to clinician Therefore, the adoption of a standard system by the pathology laboratory as well as the clinical services may well be a step forward in the achievement of the dependent interests of clinical and laboratory medicine

It is notable that prominent pathologists have participated in the preparation of the nomenclature In addition, the new 1952 edition has incorporated the preferred nomenclature concerning hematology as recommended by the Committee for Clarification of the Nomenclature of Cells and Diseases of the Blood and Blood-Forming Organs This edition also includes the new classification of tumors, which has the sponsorship of the American Society of Clinical Pathologists, the Armed Forces Institute of Pathology, and others This is in accord with the aim of the nomenclature to keep abreast of the progress in medicine by periodic revision and is a measure of the needed cooperative spirit of pathology in such progress These revisions can be to the advantage of the laboratory, since it will enable the large pathology laboratory using the nomenclature periodically to rejuvenate and store (with the appropriate edition of the nomenclature), what would otherwise have become cumbersome and space-occupying files

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Drs Sebastian Caniglia, William Glassman, Albert Levy and Irving M Reingold assisted in the preparation of this paper Miss Terese Nielsen and Mrs Ann Shell gave secretarial assistance in the preparation of the manuscript

[1] American Medical Association Standard Nomenclature of Diseases and Operations, edited by R J Plunkett and A C Hayden, New York, Blakiston Company, 1952

[2] Angrist A Classification and Cross Indexing of Pathological Material by Means of Chart Adaption of the Standard Nomenclature of Disease, J Tech Methods **25** 106 122 1945

[3] Schoen, I , and Reilly, E B Coding of Pathologic Diagnoses, Letter to the Editor, Am J Clin Path **24** 713, 1954

[4] Jordan, E P Standard Nomenclature and Medical Record Library Mod Hosp **68** 54 55, 1947 Huffman, E K Application of Standard Nomenclature in Small Hospital, Bull Am Coll Surgeons **32** 164-166, 1947

[5] Hayden A C Classification of Diseases, Correspondence, Brit M J **1** 672 1953 Arestad, F H , and McGovern M A Hospital Service in the United States, J A M. A. **152** 143-163 (May 9) 1953

[6] Hill, A B Personal communication to the authors

[7] Reimann, S P Green Pastures in Pathology, Am J Clin Path **18** 349 353, 1948

[8] World Health Organization Manual of International Statistical Classification of Diseases, Injuries, and Causes of Death rev 6 of the International Lists of Diseases and Causes of Death, Adopted 1948, bull , supp 1, Geneva, Switzerland World Health Organization, 1949

[9] The Nomenclature of Disease Joint Committee appointed by Royal College of Physicians of London, ed 7, London, England, His Majesty's Stationery Office, 1948

The use of the standard nomenclature is equally applicable to small and large laboratories and forms a basis for personal filing of reprints, lectures, and papers, the preparation of small teaching sets of normal and pathological tissue slides, and for the filing of gross and microscopic photographic slides The usefulness of the standard nomenclature system is also attested to by the adoption of its outline, in part, for cataloging by medical libraries and museums [10]

In the past few years some suggestions have been made for the organization of pathological material on a departmental service basis or for personal slide collections [11] These offer personalized programs but do not achieve the over-all benefits of standardization plus organization as does the system based on the nomenclature Thinking in terms of anatomic and etiological diagnosis and pathogenesis is the basis of study methods of gross and microscopic pathology This, too, is the basis of nomenclature and coding in the Standard Nomenclature of Diseases and Operations, by virtue of its topographic and etiological classifications and subdivisions of structural manifestations

METHOD

An understanding of the general scheme of the nomenclature and its use in the coding of surgical and autopsy diagnoses can be achieved readily by reading the few pages of the introduction in the nomenclature The article of Angrist,[2] which more especially applies to the pathology laboratory, will also be helpful in filing and coding suggestions Many diagnostic terms appear in the index of the Standard Nomenclature of Diseases and Operations If a diagnostic term does not appear in the index, coding is easily performed by using the preliminary sections detailing the topographic and etiological terms To select the appropriate code number for any diagnostic term not in the index, it is easy to identify the topographic and etiological component independently from the preliminary sections detailing the topographic and etiological terms This, too, may even be faciliated by using the chart outline in the article by Angrist [2] An example of this coding or cataloging for the purpose of filing is as follows Myocardial hypertrophy, unknown cause, may be coded 430 from the topographic classification (page 23), and 9x6 from the etiological classification section (page 80), as unknown cause with structural reaction manifesting hypertrophy The chart from Angrist could also be used If a useful diagnostic term does not appear in the index or if an appropriate code number cannot be found it is suggested that the pathologist communicate with the editors of the nomenclature One should not devise code numbers that do not appear in the nomenclature, as this is the province of the editors and the purpose of the nomenclature How far one goes in the details of numerical coding will depend on the amount of material in the particular laboratory or for the particular service For small personal filing or teaching sets of slides, subject headings instead of code numbers might be used in the same order by system

To facilitate the general use of the nomenclature, mnemonics for the order of systems and etiological classifications provide convenient memory schemes The order of terms in the topographic classification based on the first letter of the main word in each system can be remembered easily as Bīm RCH Dūēnō The order of terms in the etiological classification can be less easily remembered as Pīp Dīm Dīnū, as indicated in the table These mnemonics facilitate the autopsy demonstration and the writing or dictation of the protocol They serve also as an easy reminder of the where, what, and how of pathology

The practicability of using the nomenclature in achieving uniformity will not interfere with the individuality so cherished by the well-trained pathologist No matter what term one may choose (for example, nephrosclerosis or arteriolosclerosis), the coding and filing in anatomic and etiological terms will be similar in most all instances The controversies concerning the use of the proper etiological terms will stimulate discussion and often raise the question of "why," which should initiate and promote progress in study and research In the section of the nomenclature corresponding to supplementary terms there are useful categories often applicable to general pathology and topics of special or personal project interests can be filed with this section

Schema of Classification After the Standard Nomenclature of Diseases and Operations

Topographic Classification (Main Divisions) Mnemonic Aid Bīm RCH Dūēnō			Etiological Classification Mnemonic Aid Pīp Dīm Dīnū
Body as a whole	000	000	Prenatal influence diseases due to
Integumentary system	100	100	Infections diseases or infections due to a lower plant or animal parasite
Musculoskeletal system	200	200	Infestations diseases or infections due to a higher plant or animal parasite
Respiratory system	300	300	Intoxications diseases due to
Cardiovascular system	400	400	Physical agents diseases due to trauma or physical agents
Hemic and lymphatic system	500	500	Disturbances in circulation innervation or of psychic control diseases secondary to
Digestive system	600	600	Mechanical abnormality diseases due to or consisting of static mechanical abnormality
Urogenital system	700	700	Disorder of metabolism growth or nutrition disease due to
Endocrine system	800	800	New growths (neoplasms)
Nervous system	900	900	Unknown etiology-diseases due to unknown or uncertain cause with structural reaction manifest or
Organs of special sense	x	x	With the functional reaction alone manifest
		y	Undetermined cause

The over-all task of finding code numbers when one is familiar with the system of the nomenclature, assisted by the mnemonics described (and the outlined chart from Angrist) is not inconvenient, especially in view of the academic yield stimulated by the etiological classification The routine task is lessened by the presence of a trained pathology secretary who will have no difficulty in finding the appropriate code numbers for the more numerous and common diagnoses and who, we find, even enjoys the intellectual content associated with the use of the Standard Nomenclature of Diseases and Operations

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[10] Army Medical Library Classification Medicine and Related Subjects preliminary edition Washington D C, U S Government Printing Office 1948

[11] Gordon H Method for Cross Indexing Pathologic Diagnoses Am J Clin Path 17 913-914 1947 Wolf E Simplified Index of Pathologic Diagnoses ibid 22 364-367 1952 Lennox B A Short Classification for the Small Histopathologic Collection Lab Invest 2 164-174 1953

For the routine performances in the usual pathology laboratory, cross indexing and filing by patient's name, number (autopsy or surgical), and diagnostic code numbers or terminology facilitates the availability and usefulness of accumulated materials, as has been the experience of many laboratories In the preparation of the autopsy protocol the topographic outline (Bĭm RCH Dūēnō) is used for both gross and microscopic descriptions This facilitates correlation between gross and microscopic findings and vice versa and the reviewing of autopsy protocols for specific findings

The use of the routine autopsy procedure, autopsy demonstration procedure, and protocol outline based on the nomenclature has habituated the pathology resident to an efficient, thorough, and thoughtful study of pathology The arrangement of files, materials, and records makes the departmental material more accessible for teaching and research

SUMMARY AND CONCLUSIONS

In this laboratory, the Standard Nomenclature of Diseases and Operations, applied as described above, has been enthusiastically and gratefully received by staff pathologists, residents, and secretaries The incorporation of the system of Standard Nomenclature of Diseases and Operations into the organization of the pathological anatomy service has proved the basis of a well-integrated department

In over 10 years' use, the nomenclature has proved itself an extremely valuable tool in cataloging clinical records Its merit is attested to by its use in 74% of the nation's hospitals The system is invaluable for the coding of pathological as well as of clinical diagnoses It provides a common denominator for clinician and pathologist in the hospital laboratory It provides a means of comparing records from various hospitals and laboratories It is plastic enough to be used in laboratories of various sizes In teaching programs it assists in orienting and training the pathology resident It is a means of achieving some uniformity and standardization of terminology and methodology in medicine and lessens the schism between laboratory and clinical medicine

MEDICAL EXPERIENCES IN COMMUNIST POW CAMPS IN KOREA

Major Clarence L Anderson, Major Alexander M Boysen, Capt Sidney Esensten, Capt Gene N Lam
and
Capt William R Shadish, (MC), U S Army

The following report constitutes a general recital of the experiences and observations of five American medical officers who were prisoners of war of the Communists in Korea No attempt has been made to present this material as a scientific study The period of observation started in July, 1950, and continued until September, 1953, when the last group of prisoners of war was repatriated A large part of the accumulated prisoner of war experience is included Some of the smaller groups composed largely of men who were captured after Jan 1, 1952, were not observed directly by any of the captured medical officers

THREE PHASES OF CAPTIVITY

The entire period of captivity is divided into three general time phases The first phase started with capture and ended with arrival in the first permanent camp It was characterized by lack of food and shelter, forced marches, and exposure to the elements Men were forced to march through snow storms without adequate clothing or foot covering Food was supplied and prepared by the local inhabitants Frequently there was no food for 24 to 72 hour periods The only water available for drinking was snow or water from polluted sources, such as standing wells, creeks, and rice paddies With few exceptions, the prisoners got to rear areas by marching and carrying the wounded, either on improvised litters or on their backs Injuries resulting from prolonged marches and exposure to cold were common Dysentery made its first appearance Medical supplies were nonexistent, and treatment was limited entirely to first aid, using improvised splints and rag dressings Most of the prisoners experienced severe mental depression

The second phase began with the arrival at the first permanent camp and ended about October, 1951, when the first beneficial effects of the armistice negotiations were felt This was a phase of profound deprivation of all the necessities of life The diet was grossly inadequate The Thanksgiving, 1950, meal of one group of 500 men furnishes a typical example Each man received a millet ball weighing less than 200 gm , and the whole group was given soup prepared by boiling nine heads of cabbage in water Group sanitation and personal hygiene were at their lowest levels The men were housed in small, unheated, overcrowded, vermin-infested Korean farm houses No clothing was issued until July, 1951 Medicine and medical care were inadequate, and morale reached its lowest ebb In the face of all these conditions, sickness and death became the order of the day

The third phase began in October, 1951, with gradually increasing quantities of food, clothing, and medicine This period was characterized by many fluctuations in the attitude of the captors toward the prisoners, which

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Read before the Section on Military Medicine at the 103rd Annual Meeting of the American Medical Association, San Francisco, June 24, 1954 appeared to follow changes in the political situation and the armistice conference The diet remained inadequate in protein and vitamin content Housing was gradually improved to a point of relative comfort, and clothing was sufficient for survival Sanitary conditions, while never good, underwent a gradual improvement Medical care never became adequate Avitaminoses were prevalent

MEDICAL CARE

The health of all United Nations' prisoners was neglected throughout the period of captivity Before the onset of armistice negotiations the Communists showed no uniform desire to keep the prisoners alive By the spring of 1951 the food shortage had become so acute that weeds growing adjacent to the prison compound were boiled and eaten Most of the serious disease epidemics occurred during the first year of captivity Pneumonia and dysentery were epidemic at this time Some of the captured medical officers were allowed to see patients Medical and surgical supplies, however, were doled out on a day-to-day basis The so-called hospital compounds were frequently the coldest buildings in the camp The patients slept and lived on the floors of these filthy, crowded compounds It was common for them to awaken in the morning and find that the man sleeping on either side had died during the night No provision was made for the prisoners to be properly clothed, and their diet was always poor At times they were put on a special diet consisting of an unseasoned preparation of soupy rice

Penicillin and the sulfonamides were available sporadically and in such small quantities that it was not possible to treat all who needed these drugs On one occasion we were given 2 million units of aqueous penicillin for the treatment of approximately 100 cases of pneumonia Our captors refused to allow more than 6 gm of sulfonamide for the treatment of any single pneumonia patient. Frequently, the only medicaments available were cough tablets for pneumonia and charcoal tablets for dysentery Surgical problems were handled in an equally haphazard manner It was necessary to wait several weeks to obtain a few surgical instruments and the barest minimum of anesthetic materials Incision and drainage of abscesses was usually carried out without anesthesia, by using improvised instruments, such as a knife made from the arch of a combat boot

Deaths —Virtually all of the deaths in the Communist prisoner of war camps were caused directly or indirectly by starvation, exposure, and the harassment by the enemy The lack of medicaments was not the most important factor During the first month or two of captivity most of the deaths occurred among the wounded During the succeeding three to five months most of the men died either from pneumonia or dysentery, or from a combination of these two After the first five or six months of captivity the majority of deaths occurred among persons suffering from pellagra or beriberi During one five-month period there were between 5 and 28 deaths per day in one camp in North Korea None of these men had illnesses that would have caused death had they been under normal conditions

After October, 1951, the prisoners were put on a subsistence diet and were given sufficient clothing and reasonably warm housing All of the men continued to suffer from periodic loss of day and night vision, and bleeding from soreness of the mouth and lips There were occasional cases of pneumonia and dysentery Sickness and death became so common during the first year and a half of captivity that the prisoners began to feel that any sickness would be fatal. In an attempt to overcome this attitude, the captured physicians coined a very unfortunate term, "give-up-itis " The use of this term had its desired immediate effect on the prisoners It made them realize that the individual's fighting spirit had to be maintained at a high level for him to survive any illness The term, "give-up-itis," has recently gotten wide circulation in the public press The erroneous impression has been created that prisoners of war who were in good physical health gave up and died, this is not true Every prisoner of war in Korea who died had suffered from malnutrition, exposure to cold, and continued harassment by the Communists Contributing causes to the majority of deaths were prolonged cases of respiratory infection and diarrhea Under such conditions, it is amazing, not that there was a high death rate, but that there was a reasonably good rate of survival

Chinese Physicians —During the summer and fall of 1951, all of the British and American doctors were gradually replaced by Chinese Most of the Chinese doctors exhibited a wide range of medical incompetence Most of them had a maximum of six months' formal schooling, and we saw only one physician who appeared to be well trained The Chinese doctor who was put in the most responsible position was one who was best oriented politically The average Chinese doctor who conducted sick call in the prisoner of war camps elicited only the chief complaint and prescribed medicine for symptomatic relief It was a general rule that only one symptom would be treated at a time, therefore, if a patient suffered from night blindness and diarrhea, it was necessary for him to decide which of these complaints was bothering him more before he went on sick call He would not be treated for both conditions

The Communists introduced us to several unusual types of medical treatment. One Chinese doctor used a series of short needles attached to spring vibrators for the treatment of pain The needles were placed in the skin around the painful area and then were made to vibrate As one might suspect, some cases of back pain and headache were cured by this treatment At one time a Chinese doctor decided that all of our visual disturbances were caused by glaucoma He injected hypertonic sodium chloride solution subconjunctivally Another notable treatment was used for avitaminosis Bile was obtained from the gallbladders of pigs when they were butchered, and it was then dispensed to all who complained of vitamin deficiency diseases This treatment had its desired effect in keeping patients away from sick call In the summer of 1951 a great Russian panacea was used in treating 56 seriously ill patients This consisted of the subcutaneous transplant of small pieces of chicken liver that had been incubated in a weak solution of penicillin These patients were immediately put on an attractive, high calory high protein. high vitamin diet. In all cases the chicken liver either sloughed through the operative site or became a hard, tender nodule None of these men died, and we were thus allowed to witness another miracle of soviet medical science

INDOCTRINATION

The most important single consideration that placed the prisoners of war in North Korea apart from any other group of American prisoners of war was Communist indoctrination This indoctrination had a profound effect on the general health of the group The medical profession and the American people as a whole have a great deal to learn from a study of the techniques, purposes, and effectiveness of Communist indoctrination as it was used on Americans in North Korea There is no reason to believe that the Communist indoctrination techniques that were used on the prisoners of war were different in any way from the general pattern of indoctrination that is being used in Communist-dominated countries today It is important to realize that every aspect of the daily life of the prisoner, from the moment of capture to the time of release, was part of the general plan of indoctrination At the time of capture, each prisoner was given the general theme of indoctrination "We are your friends Your conditions of living are bad now, but we will work together to improve them We will correct the errors in your thinking Once you have learned the truth, we will send you back to your families "

Steps in Indocrination—The first necessary step was to break down the normal resistance to an alien ideology This was accomplished by keeping the prisoners cold, hungry, and in a state of disorganized confusion until each person realized that resistance meant starvation and death It was emphasized repeatedly that the prisoners were no longer members of the armed forces of their nation, and all attempts to maintain a military organization were harshly punished The planners of this indoctrination program did not condone the shooting of large numbers of prisoners Instead, they resorted to starvation and exposure to cold After a few months of this treatment the resistance of the survivors had softened The second phase of indoctrination consisted of an intensive formal study program For a period of approximately one year, most of the waking hours of the prisoners were spent in some form of supervised study Food was gradually improved and more clothing was issued It was made painfully clear to each prisoner that living conditions would be improved only so long as there was no resistance to the study program The formal study program consisted of an endless repetition of two main themes, first, that the United States government is imperialistic, run by and for the wealthy few, and, second, that Communism reflects the aims and desires of all the people and is the only true democracy The main propaganda technique that was used was ceaseless repetition of the main theme

During the third phase all formal studies were stopped The groundwork had been laid, and, to a large extent, the purposes of the indoctrination program had been fulfilled Books, pamphlets, and newspapers became available in quantity During this time, the Chinese conducted many individual and small group interviews They attempted to find points of individual susceptibility on such grounds as race, religion, or economic status The most intensive subject for special indoctrination was the bacteriological warfare hoax Throughout the period of captivity there were many instances of individual brutality Solitary confinement, beatings, withholding food and water, and exposure to cold were common punishments Resistance leaders were taken away from the main body of prisoners and kept either in solitary confinement or in small groups of recalcitrants No one escaped the indoctrination program When a captured medical officer stated that he had no interest in politics, he was told, "Up to this time your education has been incomplete You have only learned how to cure We Communists will teach you whom to cure "

Purposes—The indoctrination program had a twofold purpose, first, the selection and conversion of susceptible persons, and, second, group neutralization During the first year of captivity there was a continual regrouping of prisoners in an attempt to isolate resistance groups They were separated according to rank and later according to national and racial groups There were a few persons who eventually accepted the Communist ideology, but they constituted only a small minority of any single group The second purpose of indocrination, group neutralization, was far more important and somewhat more successful The Communists fostered discontent and distrust within the groups So long as there was no unity of purpose, there could be no effective resistance

COMMENT

The experiences of this group, therefore, form a valuable basis for the understanding of Communist aims and techniques Most persons in the United States are probably guilty of a certain smugness about the possibility of Communism actually taking over our country It is worth while to keep in mind two well-known facts first, no country has ever been taken over by Communists because the majority of the people in that country wanted it, second, no country once it has been taken over by Communism has ever reverted to another form of government Communist tyranny has been maintained by the application of indoctrination techniques similar in every respect to those that were practiced on the prisoners of war in North Korea A relatively small group of Communists with a definite plan would have little difficulty in wresting power from a government that is paralyzed by a coalition of small groups concentrating on their own short-sighted self-interests

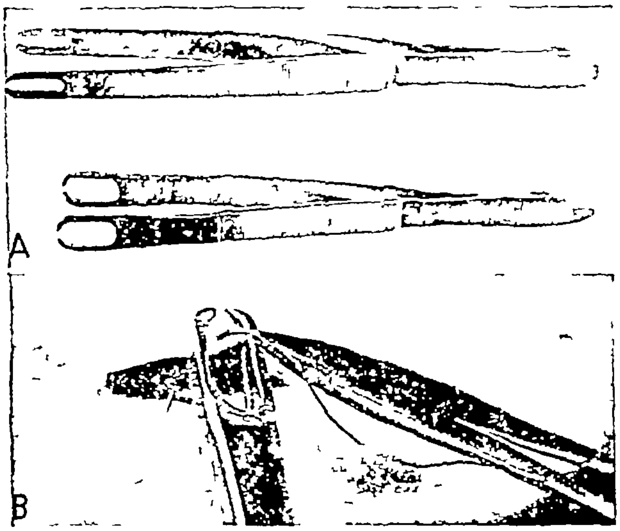
The people of the United States must realize that the spread of Communism anywhere in the world, whether by armed aggression or by internal infiltration, constitutes a direct threat to our survival as a nation Americans must work against Communism by being vigilant, they must work for democracy by constantly striving toward the democratic ideal of an enlightened people participating in their government Physicians have an influence that is out of proportion to their numbers That influence should be used to fight Communism by intelligently promoting democracy

CLINICAL NOTES

NEW SUTURE FORCEPS

Daniel Levinson, M D , Seattle

Suturing of skin lacerations is among the most frequent minor surgical operations in the general practice The usual method of suturing, in which the skin edge is held with a straight forceps while the needle is passed, is mechanically unsound because the skin is supported at one point only Resistance to the needle creates a stretching and tearing shear force between the needle and the forceps, requiring additional effort and resulting in trauma to tissue, pain, and occasional bending or breakage of the finer curved needles A new suture forceps is here described, which allows the skin to be held gently but tautly between two metal fingers Because of the ease and rapidity with which the needle may be passed through even tough skin when it is held taut, many wounds may be closed without the use of local anesthesia Avulsed and loosely hanging skin flaps, usually difficult to manipulate without assistance, are easily handled and sewed with this forceps Although the photographed instruments are designed for general work, with modifications in size and tip detail instruments of this type should find use in a variety of plastic procedures and in vascular surgery



Suture forceps designed for suturing skin lacerations *A* two examples of the instrument *B* the instrument in use

The instrument is a broad-bladed forceps with a tip composed of two narrow, 0 5 in (1 3 cm) long metal prongs that taper to a narrow opening (see figure, *A*) The prongs are serrated on the opposing surfaces for better traction The skin edge is held with the forceps, and the needle is passed between the metal prongs (see figure, *B*) After the needle has penetrated the skin the forceps may be removed to allow completion of the passage of the needle The opposite flap is similarly handled, and the suture is tied in the usual manner

325 Ninth Ave (4)

The forceps illustrated here are manufactured by Vernon Dorn Villa Park Ill and are available from Debs Hospital Supply Co, 5990 North west Highway Chicago

EFFECT OF DEXTRAN ON THE VOLHARD CHLORIDE DETERMINATION

E DuBose Dent Jr , M D
Anna R Wassell, A B
and
Frank J Svec, Baltimore

Recently in the process of performing a determination of the serum chloride level by an application of the Volhard method[1] on the blood of a patient who had received 500 ml of dextran solution,[2] a cloudy filtrate was obtained at that stage of the procedure in which the silver chloride precipitate is removed Filtration is a necessary modification if an end point that is reproducible is to be obtained Without filtration the end point fades rather quickly owing to the fact that silver chloride is more soluble than silver sulfocyanate and therefore reacts with the sulfocyanate

$$AgCl + SCN^- = AgSCN + Cl^-$$

The principle of filtration is supported by Peters and Van Slyke[3]

Cloudy filtrates resulted at the same step during repeated determinations of the serum chloride on the blood of this patient for seven days and on the blood of a second patient with a different clinical condition for 24 hours During this period the serum chloride determinations were also made according to the method of Schales and Schales[4] In this procedure no difficulty was encountered

These observations suggested that dextran might be the cause of the cloudy filtrate obtained in the modified Volhard method[1] Some in vitro experiments were used to determine whether this was true In determination of chloride concentration of dextran solution, or of pooled serums to which dextran solution had been added in a 1 10 dilution, a cloudy filtrate was obtained at the same step of the procedure This cloudiness persisted even after repeated filtrations utilizing various grades of Whatman filter paper

In attempting to produce a clear filtrate in the presence of dextran, it was found that one of two methods might be employed Allowing the cloudy filtrate to stand overnight before refiltering resulted in a clear filtrate A second and more expedient method was to heat the cloudy filtrate for one minute in a boiling water bath After heating, the precipitate of silver chloride could be removed by filtration in the usual manner with Whatman no 42 filter paper

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From the Department of Pathology Clinical Chemistry Section U S Public Health Service Hospital

[1] Volhard J, cited by Peters J P and Van Slyke D D Quantitative Clinical Chemistry Baltimore Williams & Wilkins Company 1932, vol 2 Methods p 829

[2] In this study the dextran used consisted of 6% W/V of hydrolyzed fractionated dextran with 0 9% sodium chloride solution

[3] Peters and Van Slyke[1] p 870

[4] Schales O, and Schales S S, A Simple and Accurate Method for the Determination of Chloride in Biological Fluids J Biol Chem 140 879-884 1941

These modifications do not interfere with the chloride ion since the chloride content of the dextran solution was determined as being 153 5 mEq per liter (The calculated chloride content should be 153 8 mEq per liter) The chloride content of the pooled serums was found to be 109 mEq per liter The chloride content of the pooled serums to which dextran solution was added in a 1 10 dilution was 114 mEq per liter

In the recent literature[5] that has been reviewed on the subject of plasma expanders, there are reports of slight elevations (less than 5%) in blood chloride levels due to the fact that the various preparations of dextran are suspended in isotonic sodium chloride solution These articles, however, do not mention any necessary alterations in the method or methods that the authors used for the determinations The technique described is a necessary modification if the principle of removing the precipitate of silver chloride is to be followed

SUMMARY

By use of the Volhard method with removal of the silver chloride precipitate by filtration for the determination of serum chloride levels in the blood of a patient who had received 500 ml of dextran solution, a cloudy filtrate was obtained after filtration with various grades of Whatman filter paper It was found that this cloudiness is due to the presence of dextran and that a simple technique for clearing the filtrate can be used

Wyman Park Dr and 31st St (11) (Dr Dent)

[5] Bloom, W L *Present Status of Plasma Volume Expanders in the* Treatment of Shock Clinical Laboratory Studies A M A Arch Surg 63 739-741 (Dec) 1951 Gray, I , Siiteri P K and Pulaski E J Metabolism of Plasma Substitute Dextran (Macrodex), Proc Soc Exper Biol & Med 77 626-627 1951 Turner F P , Butler, B C , Smith M E and Scudder J Dextran An Experimental Plasma Substitute, Surg , Gynec & Obst 88 661-675 1949

STUDY OF PARA-AMINOSALICYLIC ACID INTOLERANCE IN TUBERCULOSIS OF LUNG

Roger S Mitchell, M D
John Schmidt, M D
Leslie H Capel, M D
and
Lester Scheel, Ph D , Trudeau, N Y

Para-aminosalicylic acid is coming to be recognized as a key drug in combined drug treatment (with streptomycin or isoniazid) of tuberculosis of the lung Intolerance to *p*-aminosalicylic acid is widely recognized as a common practical problem in its administration Intolerance is characteristically noted as gastrointestinal upset coming on about one week or more after the beginning of the drug therapy The symptoms are anorexia, diarrhea, nausea, and vomiting, in that order of frequency Some patients are continuously affected, some affected from time to time, and some never affected The older and sicker the patient, the more likely he is to suffer This phenomenon is not to be confused with the hypersensitivity reaction characterized by fever, prostration, skin eruptions, nausea, vomiting, and leukopenia

The cause of the upset has been variously attributed to (1) the drug itself, (2) an impurity contained in the commercial preparation, or (3) a substance that forms on standing in the liquid or in the dry state or both The common impurity that has been identified in the commercial preparation is meta-aminophenol In the pure state meta-aminophenol is a colorless water-soluble solid Meta-aminophenol has been considered the cause of a brownish discoloration that develops in *p*-aminosalicylic acid when it stands, especially in solution The brownish discoloration has been thought to be roughly related to intolerance to the acid The biochemical and clinical aspects of this intolerance have been under investigation at the Trudeau-Saranac Institute

OBSERVATIONS

The absorption spectrums of three samples of *p*-aminosalicylic acid dissolved in water at a concentration of 20% are given in figure 1 The absorption spectrums were read on the spectrophotometer immediately after the samples were dissolved

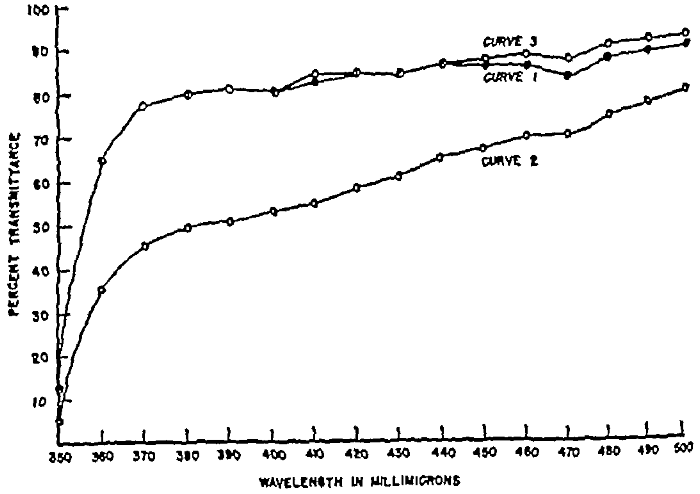

Fig 1 —Absorption spectrums for three forms of *p*-aminosalicylic acid in water solution

Curve 1 of figure 1 is the absorption spectrum of a 20% solution of the chemically pure drug Curve 2 is the absorption spectrum of a 20% solution of an old sample of the drug This sample had been packed in polyethylene envelopes under nitrogen 18 months before The crystals were a light tan color when they were placed on a white paper Curve 3 is the absorption spectrum of a 20% solution of the chemically pure drug to which had been added 4% meta-aminophenol These data demonstrate that meta-aminophenol does *not* increase the light absorption when added to chemically pure *p*-aminosalicylic acid in the wave-length region given It is further shown that a change has taken place in the crystalline composition of the old sample of the drug and that this change is not the formation of meta-aminophenol

The change in light transmittance at 390 $m\mu$ of 20% water solutions of three samples of *p*-aminosalicylic acid is given with respect to time in figure 2 Curve 1 shows the color development of the chemically pure preparation Curve 2 shows the additional color development of old *p*-aminosalicylic acid in solution Curve 3 shows the color development of the chemically pure drug with added 4% meta-aminophenol

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From the Trudeau Sanatorium and the Department of *Biochemistry* of the Trudeau Saranac Institute

The three forms of *p* aminosalicylic acid used in this study were provided by Hellwig, Inc , Chicago

It is obvious from these data that the solutions undergo a spontaneous and progressive change Meta-aminophenol increases the rate of color development after the first few days The chemically pure *p*-aminosalicylic acid undergoes the most rapid change during the first 24 hours but changes slowly thereafter

The above observations indicate that the drug in the dry state or in solution undergoes a spontaneous change with time Since the addition of meta-aminophenol to *p*-aminosalicylic acid in solution did not increase the absorption at the wave-lengths shown, the change is not due to the production of meta-aminophenol alone The fact that meta-aminophenol speeds the rate of color production suggests that this compound either catalyzes or takes part in the formation of the colored product It is suggested further that the colored material may be a polymerization product of *p*-aminosalicylic acid or its decomposition products or both

A small clinical trial was also carried out with three forms of the drug a sample more than a year old, the chemically pure drug plus 4% meta-aminophenol, and chemically pure *p*-aminosalicylic acid alone These drugs were given for two weeks in the dose of 12 gm a day of the acid, or its equivalent in the sodium salt, to 10 patients, 6 with far-advanced, 1 with moderately advanced, and 3 with minimal tuberculosis of the lungs The oldest patient was 58, the youngest, 20 All had had chemotherapy, either streptomycin or isoniazid combined with *p*-aminosalicylic acid, for a month or more before, all were clinically improving, and none were suffering from symptoms either from their disease or from the treatment. The presence or absence of the symptoms described above was recorded daily Neither the patients nor the physicians knew which drug was being used, all the patients were receiving either isoniazid or streptomycin as well as the *p*-aminosalicylic acid

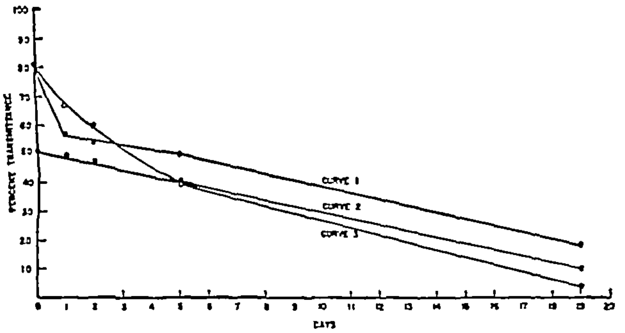

Fig 2 —Change in light transmittance of three forms of *p*-aminosalicylic acid in water solution.

Of the 10 patients examined, only 5 were symptom-free throughout the investigation Among the remaining five who had symptoms of intolerance, the different forms of the drug behaved as described below during the two weeks in which each was tried The chemically pure drug produced one day of mild diarrhea in each of two patients and three days of mild diarrhea in one patient. The chemically pure drug adulterated by 4% meta-aminophenol produced 13 days of mild diarrhea in one patient and 5 days of mild diarrhea in another patient The old sample of the drug produced symptoms in each of the five patients 4, 9, and 11 days of diarrhea in each of three patients and more than 10 days of both nausea and diarrhea in two Interruption of the experiment was necessary in one of the latter patients All these patients experienced immediate relief when given the standard commercial or chemically pure drug

SUMMARY AND CONCLUSIONS

From these preliminary observations it is suggested (1) that gastrointestinal upset due to *p*-aminosalicylic acid is very often due to a brown impurity that develops with aging of the drug, (2) that meta-aminophenol, commonly thought to be the cause of intolerance, is not in fact the toxic substance involved in this problem, and (3) that the brownish impurity may be a resinous polymer of *p*-aminosalicylic acid The latter concept is being investigated further

Trudeau Sanatorium (Dr Mitchell)

CLINICAL THERMOMETERS AND URINOMETERS

DETERMINATION OF THEIR ACCURACY

E Grey Dimond, M D
and
Martin H Andrews, M D , Kansas City, Kan

The purpose of this study is to determine the accuracy of some of our present-day clinical instruments, on which the physician relies for important information concerning his patients' status and progress The study has been limited to the thermometers and urinometers in use at a 500-bed general hospital

The success of modern medicine does not depend on the absolute accuracy of these instruments either for correct diagnoses or for proper management of the patient. The healing art was far along when the physician estimated temperature rise by the laying on of hands The "urinologists" of former years could roughly discern whether a person's urine was too concentrated or too dilute

Today, however, we have at our fingertips numerous instruments of precision that have rightfully taken the place of guesswork in medicine Many times a physician comes into the modern hospital and sees on his patients' charts incongruous temperature graphs, weight changes, and urine specific gravity recordings Indeed, sometimes he finds himself wondering whether his own guess would not yield more accurate information

If he attempts to extract an explanation from the floor nurse, he receives a standard reply that the reading was what the thermometer showed If he takes the trouble to call the laboratory to ask if the specific gravity of a patient s urine is really 1 040, the reply is that the results were checked twice On occasion he may find that his patient has gained (or lost) 7 lb (3 2 kg) overnight, and he is puzzled until he discovers that the patient s last weight was recorded from a different scale, then he is further puzzled as to which scale was accurate

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From the Department of Medicine University of Kansas Medical Center

Three outstanding reasons for the appearance of incorrect recordings of body temperature and urine specific gravity are obvious 1 The instrument may be defective and inaccurate 2 The person who uses the instrument may fail to properly read the results 3 An accurate result may be incorrectly tabulated on the patient's chart The latter two factors are exceedingly difficult to remedy, especially when the person involved is untrained and therefore prone to use poor technique and relatively poor observation However, definite information and remedial measures can be obtained regarding the first factor—the intrinsic accuracy of the instrument

Thermometers —Every thermometer in use on all the hospital wards and in the clinics at a large general hospital was tested against a standard thermometer, which was accurate at freezing and boiling points and at all gradations between these points The clinical thermometers were first identified according to serial number, manufacturer, and type (oral or rectal), then shaken down until the mercury column was below 95 F The thermometers were then partially submerged in about 2 in (5 cm) of water in a constant temperature water bath for a period of 10 minutes The highest temperature indicated by the standard thermometer during the 10 minute period was recorded as the standard temperature The readings of the clinical thermometers were then recorded

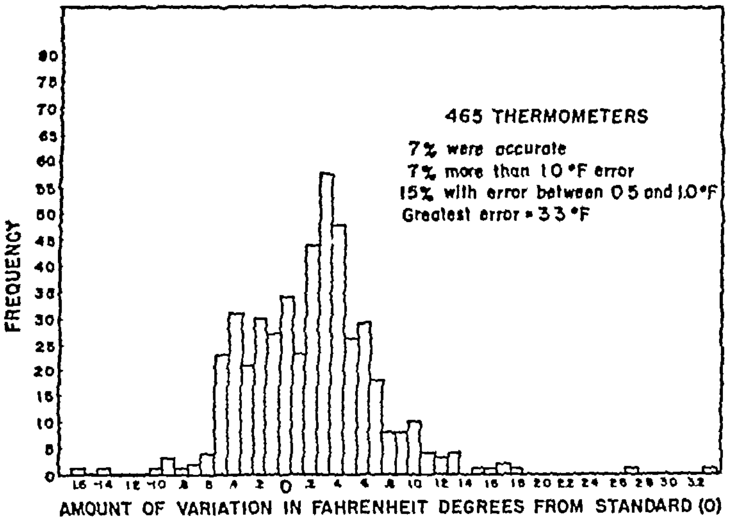

Chart showing frequency distribution of variation below and above standard thermometer

A total of 465 thermometers were tested, of this number, only 34, or about 7%, were exactly in accord with the standard Another 7% showed variation of one whole degree or more from the standard About 78% of the total showed variation of less than 0 5 degrees The greatest error was 3 3 degrees from the standard (see figure)

Many thermometers had defective pigmentation in the etched lines and figures A few of the thermometers recorded the correct temperature of the water-bath, but the mercury column regressed immediately on removal of the thermometer to the cool room air Many of the thermometers could be shaken down below 96 F only with considerable difficulty One thermometer was noted to have the mercury column separated by air All of these faults are serious and contribute greatly to inaccurate temperature recordings One wonders how much needless laboratory work was done to find the cause for the unexplained 0 5 degree of fever that must have been found in a considerable number of patients The fact that most of the wards use nurses' aides to read and record temperatures probably adds another source of inaccuracy

Urinometers —The majority of urinometers in use at this hospital were in the main urinalysis laboratory The remainder were used in student laboratories and the outpatient urology clinic Each urinometer was tested for accuracy in a container of distilled water that was maintained at the temperature for which each instrument was calibrated

Of 15 urinometers tested, 4, or about 25%, were exactly accurate The rest were all inaccurate, they registered from 0 003 to 0 010 below the actual specific gravity of the water Thus, a specimen of urine might show a specific gravity of 1 005 when the actual recording should be 1 015 Such inaccuracy would obviously vitiate the concentration-dilution test as well as give misleading information in numerous disease conditions Frequently an unusual specific gravity reading is rechecked by the technician, this is a futile procedure if it is done with the same urinometer or with another inaccurate one

CONCLUSIONS

Physicians should be cognizant of the frequent inaccuracy of clinical instruments If a patient has a persistent unexplained temperature elevation to 99 6 F, it is as important to ascertain the accuracy of the thermometer as it is to make cultures of the patient's blood A persistent failure to concentrate urine to 1 010 or more can very probably be caused by a faulty urinometer Laboratory technicians and all other persons who use and place reliance on such instruments need to be aware of such possibilities Even such simple, readily available equipment as the thermometer and the urinometer should be periodically checked for accuracy

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LEPROSY ACQUIRED IN MILITARY SERVICE DURING WORLD WAR II

REPORT OF A CASE

Norman E Levan, M D , Bakersfield, Calif

In 1947 Aycock,[1] in a study of leprosy in American veterans, made the prediction that an appreciable number of cases would result from service in endemic regions during World War II This report concerns such a case Similar instances may be anticipated during the next 30 or more years in veterans of both World War II and the Korean campaign who served in endemic regions

The patient is a white man born in Kansas in 1907 The first symptom of his present illness appeared while he was in military service in the Philippines in July, 1945 At that time, without any preceding injury, a painless, irregularly circular 2 in (5 08 cm) ulcer appeared on the left calf This lesion healed spontaneously, leaving a hypopigmented, anesthetic, atrophic scar During the next seven years the area of anesthesia slowly enlarged to involve most of the left calf In December, 1952, there was a painless burn, from a gas heater, at the site of the original ulcer

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[1] Aycock W L and Gordon J E Leprosy in Veterans of American Wars Am J M Sc **214** 329 339 (Sept) 1947

The patient was then seen by various physicians including a neurologist who suspected the possibility of leprosy The patient was referred to the veterans facility, Sawtelle, Calif, where extensive studies were done Findings included a positive histamine reaction, that is, an absence of flare within the anesthetic area on injection of histamine phosphate solution intradermally, and anhidrosis in the same area after injection of pilocarpine The lepromin test elicited no reaction An attempt to abolish the positive histamine reaction under hypnosis was unsuccessful, however the staff felt that the diagnosis of leprosy could not be confirmed, and the patient left the hospital In the course of the next two months areas of hyperesthesia appeared on the elbows and the left concha On examination in June, 1953, I noted a small number of faint, pink, hypoesthetic macules with slightly thickened edges on the patient's chest, back, upper arms, *and thighs Histological examination of a specimen from one* of these macules showed only slight perivascular round cell infiltration in the upper and midcutis on hematoxylin and eosin staining However, with the Fite stain, rare acid fast bacilli were demonstrable, and these were also found in smears of material obtained by the scraped incision method The lepromin test remained negative Thus a diagnosis of leprosy, of either the early lepromatous type or the "indeterminate' group,[2] was established

Review of the patient's family history and his various places of residence provides nothing to indicate that his condition could have been contracted outside of military service His father was born in Kansas in 1873 and died in 1949 of coronary occlusion His mother was born in Kentucky in 1881 and died in 1930 of asthma and "dropsy Neither parent ever lived outside the United States Two older brothers are both living and well While not in the armed services, the patient has lived in three cities in the United States Florence, Kan, from birth until 1940, Salt Lake City, 1940 to 1943, and Bakersfield, Calif, October, 1945, to the present time From 1943 to 1945, he served in the United States Army in four locations Camp Roberts, Calif., from October, 1943, to March, 1944 New Guinea, April to September, 1944, Leyte, Philippine Islands, September to December, 1944, and San Fernando, Pampanga Province, Luzon, Philippine Islands, January to September, 1945 While on Luzon, he was quartered on the second floor of a native house

By arrangement with the local and state health departments, the patient is being treated with sulfoxone (Diasone) sodium on an outpatient basis He must comply with several regulations for modified isolation[3] There must be no children under 18 in the household and children must not be permitted to visit. There can be only a minimum number of adults in the home, there must be no boarders, and adult visitors may not eat or stay overnight in the home The patient can work only at an occupation in which his contact with other persons is minimal (this patient is a garage employee) He may not shop or attend public functions He must receive continuous treatment with sulfoxone These restrictions can be lifted when 12 monthly *skin scrapings for acid fast bacilli* have been negative Since the institution of treatment with sulfoxone, there has been complete disappearance of the macules described and no further increase in the anesthetic and hyperesthetic areas Acid fast bacilli ceased to be demonstrable within three months after treatment was begun

COMMENT

Aycock[1] based his prediction on experiences with veterans of the Spanish-American War, in whom leprosy appeared from 3 to 32 years after exposure The duration of stay in foreign foci ranged from 9 months to 32 years, but no information was available as to the nature of actual exposure In this regard, concerning persons first exposed in adult life, it would appear that neither the length nor the intimacy of exposure is a major determinant but that ordinary unrecognized exposure while in endemic regions can result in the infection of certain susceptible persons The nature of susceptibility is unknown In World War I, with minor exceptions, American troops did not serve in endemic regions, and Aycock found no suggestion that any veterans acquired leprosy as the result of military service in World War I He found 11 cases in World War II veterans, but none of these appeared to have been the result of service exposure Except for a report of two cases that developed in tattoos,[4] I have found no reports of service-connected infections in American veterans of World War II, although the British literature[5] contains a number of such cases

2741 H" St.

[2] Wade, H W The Classification of Leprosy A Proposed Synthesis Based Primarily on the Rio de Janeiro-Havana System Internat. J Leprosy **20** 429-462 (Oct. Dec) 1952.

[3] Gray H. H Hansen s Disease (Leprosy) in California California s *Health* **11** *73-76 (Oct. 31) 1953*

[4] Porritt, R. J and Olsen R. E. Two Simultaneous Cases of Leprosy Developing in Tattoos, Am. J Path. **23** 805-817 (Sept.) 1947

[5] Doyle J O Case of Leprosy Seen in a V D Clinic in Britain Brit. M J **2** 261 262 (Aug. 1) 1953 Rogers J Leprosy Report on Four Cases ibid **2** 259 260 (Aug. 1) 1953

SPECIAL ARTICLE

THE CLINICAL INVESTIGATOR AND HIS ROLE IN TEACHING, ADMINISTRATION, AND THE CARE OF THE PATIENT

Robert H Williams, M D , Seattle

Never before has clinical research received such a glorified position or as much financial and spiritual support as today The public demands it, Congress has provided for it, medical schools clamor for it, and patients not only tolerate it but sometimes request it. In the last 10 years, there has been a pronounced upsurge of public interest in research, and the amount of money provided,[1] especially by the federal government, has increased greatly (fig 1) The total expenditure for medical research in the United States increased from an annual rate of about 18 million dollars in 1941 to 181 million dollars in 1951 The increase is out of proportion to both the increase in trained medical research manpower and the increase in national income (fig 2) This should be viewed not as today's excess but as yesterday's deficiency, the present investment in medical research is only about 7 cents per $100 of national income An extremely small amount is spent to save lives, compared to that spent for potential destruction of life

In general, the increased medical research funds have led to a much greater knowledge of diseases and their therapies and have increased the number and quality of teachers However, in some medical schools certain departments have been accused of putting too much emphasis on research, thereby increasing the administrative duties and decreasing the quality and quantity of teaching and patient care (fig 3) Medical progress is built on these four pillars, and each should be strong in appro-

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From the Department of Medicine University of Washington School of Medicine

Presented in part as a presidential address at the annual meeting of the Western Society for Clinical Research Jan 29 1954

[1] Endicott, K. M and Allen E. M The Growth of Medical Research 1941 1953 and the Role of Public Health Service Research Grants Science **118** 337 1953

priate proportion but a satisfactory balance of strength in each of these pillars is often difficult to achieve It has often been stated that a physician cannot do a satisfactory job as a teacher, investigator, and administrator It has been maintained that (*a*) scientists cannot be good physicians or teachers, (*b*) teachers cannot be good physicians or scientists, (*c*) administrators cannot be good teachers or scientists and (*d*) the administrator need not be a good physician, scientist, teacher, or administrator Such statements have been belied many times by men skilled in all four realms Many physicians have been inadequately acquainted with the virtues and necessities of each of the four pillars and the value of smoothly integrating them Rather than being mutually exclusive, each has much to offer the other, and, in the final analysis, they are all concerned with patient care The role of each of the four major pillars of medical progress will now be discussed

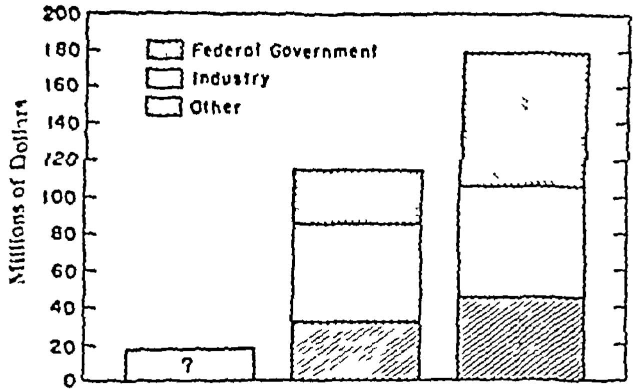

Fig 1 —Graph showing the funds spent by the federal government, industry and other groups for medical research (reprinted with permission from Endicott and Allen)

CLINICAL INVESTIGATORS

Personality Traits —There is no set personality pattern for clinical investigators, they, along with scientists in other fields, show great variety in background, training, objectives, philosophy, and emotions However, the nature of the work does exert an influence on the type of person attracted and on the development of some of his characteristics The investigator's background and emotional make-up may influence the type and interpretation of his investigations This relationship between a scientist's personality and his research deserves further study In this connection the following ideas expressed by a psychiatrist, Kubie,[2] are of interest "   the emotional problems which arise early in the careers of young scientists are more taxing than are those which occur in other careers   [he] often reaches maturity after a lopsided early development In this development he resembles many other intellectuals A typical history is that an intellectually gifted child develops neurotic tendencies which hamper his early aggressive and psychosexual development If at this point he is intellectually stimulated by one or another of the emotionally significant adults of his life, he is likely to turn away from athletics and the social life which he finds difficult to more bookish activities   The first step in any program of scientific research is to observe natural phenomena while taking care not to alter these phenomena by the very process of observing them In spite of the most meticulous care, however, the ever-present, unconscious forces of the observer color in some degree the glasses through which he makes even simple observations Therefore it is out of such tinted observations that he develops his scientific theories   it is impossible for an investigator to prevent the intrusion of his unconscious biases [There is]   a subtle interplay of reason and emotion   "

Indeed, there are some persons in clinical investigation with emotional complexes of the type just described, but, in the close contacts that I have had with many investigators in departments of medicine, this pattern has seemed to be rare There is a great variety of persons —some have been outstanding athletes, some leaders in civic activities, and many scholarly, broadly cultured, and possessed with both personal charm and emotional stability

Though most career clinical investigators have had good academic records, having ranked in the upper part of their medical school class, many are not brilliant Talent is important depending on how, and how much, it is used Some persons display threads of scientific brilliance that never become sufficiently interwoven into a tangible pattern They fail to make significant contributions because of too little coordination and integration of their activities Successful clinical investigators are notably industrious, but they do not always view their efforts as "work," Osler's masterword in medicine, because they may be engulfed by enthusiastic inquisitiveness or insatiable curiosity and goaded by burning ambitions The investigator's interests are sustained during times of failure as well as success With a background of scholarship and training, he exercises imagination and originality in conceiving and organizing his experiments These are then conducted with initiative, ingenuity, precision, and thoroughness He is forever on the alert, looking carefully for both the expected and the unexpected results With perserverance, he pursues his studies from year to year

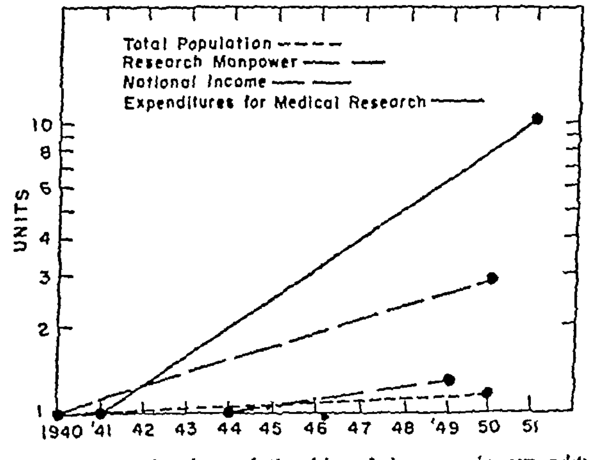

Fig 2 —Graph showing relationship of increase in expenditures for medical research and increase in research manpower and national income (reprinted with permission from Endicott and Allen)

Motivation —The motivating forces for engaging in a career of clinical research are often diffuse and ill-defined Sometimes, a continuation of natural curiosity in childhood is important Sometimes, motivation results from a spirit of dedication and determination to combat a disease that has affected the investigator or a close friend or relative Occasionally there is only a pseudo-interest in investigation, with a superstructure of craving for distinction and glory, those in this group soon wither Motivation for clinical investigation may develop while a physician is working as a research fellow with an aim to learn more about a given specialty The person may discover an intense interest in, and aptitude for, the research he is doing, with appropriate encouragement from his superior, he may be stimulated to continue in research as a career This perhaps is one of the commonest patterns for clinical investigators, and it fits a good philosophy, that is, one should do what he can do the best and what he enjoys most—these often coincide A person with a strong desire to be of service to mankind may select the phase of clinical research in which he believes the immediate needs are great. For example, recently in a discussion of Dr William Lennox under the heading "Leading Men in Science," it was stated that "for him the epileptic patient is not simply the vehicle of a clinically interesting abnormality but, first and foremost, a suffering individual, socially ostracised and deprived of the right to lead a useful, active and happy life "

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[2] Kubie, L S Problems of the Scientific Career, Am Scientist 41 596, 1953

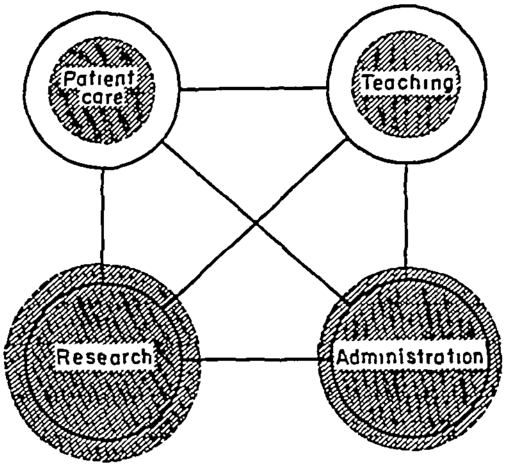

Fig. 3—Chart showing the four pillars of medicine.

Training—Training is easier if the person has the appropriate spirit As Jesus said to Nicodemus, "Ye must be born of the spirit!" Patterns for training are as variable as research objectives In medicine it is desirable that the physician spend approximately three years of training as a house officer and two years as a research fellow, working under the supervision of a wise, successful, and experienced scientist, as John Finley said, "Nothing succeeds like successors " The research fellowship should be used to learn some of the techniques and also the general principles, policies, and objectives of research During this interval, the research fellow should receive inspiration and sophisticated critique Considerable supervision should be received during the first year, but less in the second year Frequent discussions with the supervisor are helpful, even the most experienced investigator profits from discussions with others about his investigations

Two years in a research fellowship often will indicate the potentialities in research of an investigator The summation of several good attributes does not necessarily mean that the subject will be a good investigator For example, he may be highly intelligent, industrious, interested, and fertile of ideas, but yet may fail to make significant contributions Until good ability in investigation has been demonstrated, it is not best for his future progress and happiness, or for society, for him to plan definitely for a career in research

Relationship to Others—As in other professions with many highly capable men working strenuously under emotional tension, temperamental outbursts, jealousy, or envy may impede headway and interfere with fraternalism and scientific progress Unwarranted criticisms may be made about another investigator and, indeed, great efforts made to discredit him Despite our excess epinephrine, we must maintain mental composure

An occasional investigator, in his eagerness to attain glory, may lose some of his integrity in reporting his observations, or he may fail to give adequate credit to other investigators, earning for himself the title of "scientific bandit." Few ideas are absolutely new A considerable number of closely allied observations have usually been made by other investigators before a great discovery is announced Once an appropriate background is developed, the same discovery may be made simultaneously by several investigators Indeed, some of the preliminary observations may be a greater accomplishment than the discovery itself Thus, credit often needs to be sprinkled on a long path.

Look at that crack! What does the think? He has 20 m n
Nobody could get out
Well known scientist

Fig 4—A scientist presents his research to his peers (reprinted with permission from Steinberg)

Favorable Conditions for the Investigator—In addition to the appropriate ability, spirit, and training it is important that the investigator also have adequate space, equipment, and supplies Moreover, it is important to have an atmosphere conducive to work—inspiration from colleagues and a minimum of distractions such as worries about finances and domestic affairs The un-

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3 Deleted on proof

knowing sometimes do not have adequate patience with the scientist They are perplexed by his tenacity of purpose, his perseverance despite setbacks, his spirit of adventure, insatiable curiosity, and love of science Claude Bernard said, "Those who do not know the torment of the unknown cannot have the joy of discovery"

The scientist needs ample freedom in the problems that he investigates and the approach that he uses He should not have his interests twisted just to get more readily available financing nor should administrative restraints hamper unduly his research

Arthus has said, "Indeed it is not in the turmoil of social life, nor through academic chats nor laboratory gossip that we come to see the light, that interpretations become clear, that experiments are conceived, and conclusions reached It is through solitary, profound and sustained meditation" With meditative gestation, one can weave the isolated fabrics of scientific observation into a well-suited pattern for clinical application

The clinical investigator receives stimulation from both patients and the searching questions of students The statement "Necessity is the mother of invention" certainly applies in clinical investigation Observations of patients continuing to suffer, despite the best we have to offer, goad the investigator to ardent efforts toward relief This stimulus keeps his goals clearly defined, incites tenacity of purpose, and nurtures progress toward fruition

PATIENT CARE AND CLINICAL INVESTIGATION

Fusion of the Science of Medicine with the Art of Medicine—Through a lack of understanding there has been, as stated by Atchley,[4] a "false legend that a scientific training with its inculcation of logic and critique smothered man's finer feelings and led to cold and wholly objective attitudes" Actually, when a humanist bathes in scientific knowledge, the humanism is not washed away but acquires greater charm and a deeper rooting as a result of greater wisdom and understanding The art of medicine can reign supreme only when there is a richly humane application of the best scientific knowledge to the problems of the patient, in the absence of scientific information the art stands as a weak and ghostly structure Contrariwise, the physician blessed with great scientific skills, but not imbued with the humanistic spirit or lacking appropriate goals and morals, can but briefly bask in the halo of the art of medicine

The necessity for acquiring a great deal of scientific knowledge and critique has engendered psychogenic dysphagia in some clinicians Many clinicians, particularly medical school graduates of more than two decades ago, have been inclined to label as "theoretical" and nonpragmatic any research that does not immediately disclose a superior test or treatment, although a much better understanding of disease and the rationale of specific therapy might be derived from it Actually, such information is quite "practical," because it provides a logical basis for handling each patient in accordance with the individual problems he presents The value of acquiring understanding, as well as wisdom, is emphasized in Proverbs 4 7 "Wisdom is the principal thing, therefore get wisdom and with all thy getting get understanding"

Research of Today the Practice of Tomorrow—With the development of astute clinical investigators, the interval from scientific discovery to routine clinical use has been shortened considerably They have also helped in getting the research of the basic scientists to reap fruition in clinical medicine much more rapidly and abundantly The intellectual and other resources of the basic scientist and the clinical investigator have been combined for mutual benefit and the good of mankind With the acquisition of greater scientific critique the physician has become a better student and teacher

Care of the Patient—Very few clinical investigators engage exclusively in research They usually must take very good care of the patient whether or not he presents any research interests, this is a responsibility enjoyed by most clinicians For optimal effectiveness in clinical research and teaching, an adequate number of patients is necessary and the investigator must be an astute clinician Excellent care of the patient must be given foremost consideration, with research and teaching being coincidental This care is a necessity for good research, the best teaching is by precept and example As Peabody said, "The secret of the care of the patient is in caring for the patient" The physician must have a very sincere interest in and loyal concern for the patient and use a kind and gentle approach Too often there is a fleeting and unconvincing sympathy with incongruity of words and actions, when there is genuine, deep-rooted sympathy and true compassion, it is calming and comforting to the patient and his family Even though there are provided hormones, antibiotics, and other tangible therapies that achieve astonishing results, humane considerations must not be neglected In conditions in which such objective treatment is to no avail, humanistic talents must be exercised to the utmost The physician's attitudes, abilities, and actions must be such that the patient develops respect, faith, and warm regard for him If the patient does not develop deep-rooted confidence in his physician and a genuine spirit of close friendship, the most brilliant plans may be ineffective or rejected

Particularly after the physician has become well-acquainted with the patient, it is helpful for him to have a cheerful and friendly spirit without sacrificing his concern or poise The approach to and care of the patient must be adjusted to the patient's personality traits, previous environment, background, and his present illness A psychodynamic approach is often needed and is very important The physician must be thorough, precise, and wise in the execution of diagnostic and therapeutic procedures He must give serious consideration to even minute details that may make the patient more comfortable and give him a better peace of mind Many of the patient's anxieties may be alleviated by appropriate explanations of some of the manifestations of his disease, along with the rationale for and possible benefits from the more major diagnostic and therapeutic procedures It is impatience, thoughtlessness, and neglect along these lines that often lead to corrosion of rapport and impairment of the efficacy of some of the physician's technical skills Many patients prefer sacrificing some science for humanism The development of scientific skill should not cause us to forget kindness, compassion, and warm regard for the patient Here the physician today is in a much better position than were his forefathers, because the acquisition of medical knowledge, and a better understanding of it, has promoted simplicity, clarity, frankness, and honesty in talking with the patient, no longer need he dwell in a mythical, mysterious, vague, and supercilious atmosphere He must offer as much reassurance, encouragement, and hope as the situation justifies To bring happiness and to assuage anguish helps in the healing process, particularly in patients with marked emotional disturbance and mental stress It is well to heed Corinthians 1, 13 13 "And now abideth faith, hope, and love, these three, but the greatest of these is love " Usually the healing cults make sure that these abide, and this accounts for many of the dramatic testimonials offered When the physician is too nihilistic and discouraging, the patient may, in desperation, seek aid from quacks, frequently with ill consequences somatically and financially On the other hand, the physician must not be persuaded to engage in adventurous and illogical therapies that do more harm than good

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[4] Atchley, D W The Healer and the Scientist, Saturday Review 37: 7, 1954

Clinical Investigation —The idea of doing research on patients should not provoke the alarm that it sometimes does Two of the meanings given for "research" are "careful search" and "studious inquiry " In day-to-day routine practice, every good physician gives his patient a certain type of therapy, observes the patient carefully, and may shift the dosage or may try another type of therapy—thus it is a type of experimentation The better trained the physician is in investigative critique, the more effectively can he set up an objective plan of study While experimentation on patients is the rule, it should not be carried too far [5] Although it is difficult to draw a sharp limit to permissible procedures, it is important that the limits be neither too restrictive nor too loose, either extreme would be harmful to society Numerous factors are concerned with any major experiment and all of these must be weighed carefully The patient's consent should be obtained, especially whenever the investigation has possibilities of danger "The patient, however humble and however ill, in whatever degree derelict and forlorn, has sacred rights which the physician must always put ahead of his burning curiosity," writes Bean [6] Obtaining the patient's consent is not necessarily a differentiation between right and wrong Some procedures may be legal technically but wrong morally and some illegal but right morally The laws are not complete or perfect, and the interpretation of some of them varies in the best legal circles There are two additional steps that are helpful in making a decision First, the investigator should test his reservoir of knowledge, philosophy, and integrity by frankly asking himself if he, under similar circumstances, would be willing for another investigator to do the experiment on him and his immediate family An affirmative answer does not necessarily constitute justification, but it is a major step in that direction Second, he should get the advice and opinion of several well-qualified persons, thereby strengthening scientific and moral judgment Indeed, it is advisable to have a standing *clinical investigative committee to which can be referred* problems that may have significant hazards In the better clinical investigative circles, the question of illegality and moral necrosis in research rarely present themselves Moreover, the most intelligent patients tend to be the most willing to cooperate in clinical research

The following plan has often been used by myself and many others in testing new drugs 1 Extensive pathological, biochemical, physiological, and pharmacological studies are made in animals with the upper limit of dosage being many times that ever considered to be necessary in man. 2 Patients with far-advanced cancer or some other such hopeless disease are given very small doses, with progressive increments to levels several times those ordinarily regarded as necessary for the desired effect. Careful observations are made of the clinical status of the patient and of laboratory studies, particularly those that might indicate damage to the bone marrow, liver, and kidney 3 The drug is given to the usual type of patient whom it is desired to treat, beginning with relatively small doses and progressively increasing them It is best not to start treatment of more than a few patients until the long-range effects have been studied Even if such studies have been conducted in animals, some of the ill effects may not appear in that species or not be noted In the process of testing the clinical applicability of a given compound, it is important that the analyses be critical, but not hypercritical Figure 5 illustrates some of the common reactions of investigators, along with extreme swings in enthusiasm that may accompany the clinical study of new drugs Even if the responsible investigator exercises appropriate conservatism in his claims, some other investigators or overzealous pharmaceutical companies may cause an unjustified mushrooming of interest. However, congratulations are due the better pharmaceutical companies for their caution in the release of new drugs, often in the face of enormous pressure from practicing physicians, legislators and others Special appreciation is owed the Food and Drug Administration for doing a superb job in protecting the public from dangerous drugs and for preventing fraudulent claims regarding other compounds

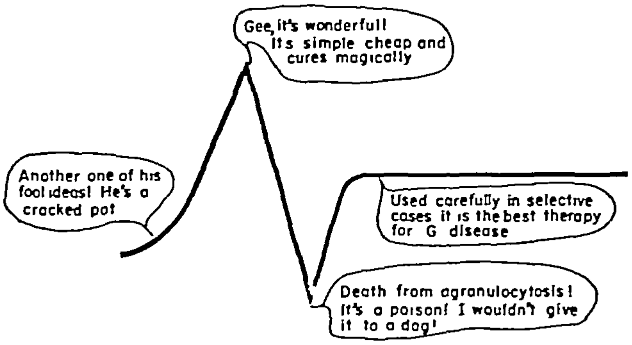
Gee, it's wonderful!
It's simple cheap and cures magically
Another one of his fool ideas! He's a cracked pot
Used carefully in selective cases it is the best therapy for G disease
Death from agranulocytosis! It's a poison! I wouldn't give it to a dog!

Fig. 5 —Oscillations in the development of a drug.

TEACHING AND CLINICAL INVESTIGATION

Since the doors of the clinical domain have in the last few decades, been opened far wider to the knowledge of the basic scientists and since basic science research has been conducted abundantly in clinical areas, there has been a great transformation in the teaching of medicine As it is in research and patient care that “ the atmosphere is experimental, the mood is inquiring, the goal is understanding ” [6] With the replacement of empiricism and mysticism by knowledge and understanding, unfounded dogmatic dictums and traditional superstition have been shoved into the background Now that medicine is reaching maturity as an applied science, adequate evidence must be provided before a concept is accepted as established

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[5] Shimkin M B Problem of Experimentation on Human Beings Research Worker s Point of View Science 117 205 1953

[6] Bean W B A Testament of Duty Some Strictures on Moral Responsibilities in Clinical Research J Lab & Clin Med 39 3 1952

Although the full-time staff should perform a considerable amount of teaching and plan the organization of the teaching and research, since they have had special training, experience, and skill in this line, it is very important to utilize the services of as many as possible well-qualified physicians engaged primarily in the practice of medicine—the so-called part-time staff When the full-time staff attempts to do all the teaching, the load is so great that research tends to be neglected, with consequent deterioration of teaching in quantity and in quality—the latter partly because enthusiasm, one of the keys to success in teaching, is lost when the routine burden becomes heavy and long The part-time staff members often volunteer their time and, as a result of their extensive experience in practice, add certain approaches that may be touched on too lightly by the full-time staff The experience also accomplishes a good deal in other ways 1 The part-time physician increases his knowledge and is stimulated by students and colleagues 2 By helping to interpret the objectives and accomplishments of the medical school to the community, he contributes to the progress of medicine both spiritually and financially My experience with the physicians in this group has stimulated warm regard and profound appreciation for them

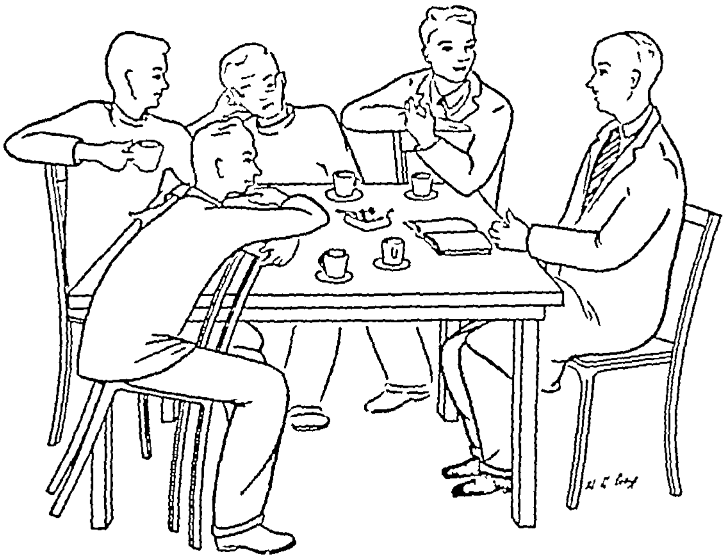

Fig 6 —The staff member too can learn

With the rapid growth of medical knowledge, much of which is made readily available to every physician, the task of keeping abreast of all the information exceeds the capacity of the best pair of cerebral hemispheres Students often acquire facts that are not known to the physician-in-chief, or certain other staff members, such supplementary knowlege, when diplomatically presented, should be welcomed It behooves the staff member to become a leading student, this can be the only firm basis for engendering respect, admiration, and warm regard, his many more years of training and experience will have netted him a vast storehouse of knowledge that he can apply with great proficiency In contrast, he may be branded as a “stuffed shirt” and impostor if he attempts to create an atmosphere of omniscience by making an occasional formal appearance before the students, garbed as a superauthoritarian and surrounded with a bodyguard of associates and residents to “stiff-arm” any challenge of this authority until he can drop his few pearls and then remain aloof until the “next show ”

There should be frequent check-ups on the efficiency of the various teaching programs Although this can be done in many different ways, one of the most effective is to obtain the students' evaluations of the lectures and all aspects of the physician's performance on ward rounds Whereas students do not know as well as the staff what they should be taught, they are the ones who can tell best if they are learning what the instructor is attempting to teach If the teaching is ineffective, efforts should be made to correct it by changing the methods and/or the duties of the teacher

With the rapid progress of medicine and the ever-increasing additions and modifications, it is more important that the student be taught broad concepts, organized plans of approach using scientific critique rather than many, many more facts than he can understand or retain Efforts should be made to stimulate his curiosity, to encourage him to develop inquisitiveness, and to teach him some of the general principles of research and to illustrate some of these principles by having him participate in some aspect of research It is important for him to get some perspective of research, even if he is to enter general practice in a small town For example, consider the status of cortisone, particularly in the first year after it was introduced Many papers were written but few reviews, and very little was in textbooks Thus, the practitioner could choose between (*a*) not using the drug or (*b*) analyzing original articles critically He could have gotten his information from an expert at a medical meeting or postgraduate course, but he could have acquired this much more efficiently if he had had adequate basic training

Considerable alteration in our teaching curriculum is needed, particularly to promote better integration of the teaching in various departments, many conjoint exercises are indicated Although a patient usually presents himself with complaints indicating a disorder in a functioning unit,[7] such as respiration or micturition, there usually are morphological, biochemical, and physiological alterations For appropriate therapy there may be necessitated a good understanding of bacteriology, drug action, surgery, x-ray, or of any or all of the sciences taught in medical school Not only the student would benefit from a greater coordination of teaching, but the instructor, in studying what the various departments have to offer, would also profit by obtaining a better over-all perspective in teaching A few patients should be studied even in the first year of medical school The problems of patients serve as a stimulus for reading books or journals, with some disorders, considerable knowledge may be acquired by prolonged close observation of the patient, but in others proportionately more time is needed for reading The physician can do his best job in teaching by handling the patient and his problems superbly

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[7] Atchley, D W The Orientation of an Undergraduate Medical Curriculum, Science 104 67, 1946

Postgraduate Training—A physician may have an excellent training as a student and house officer, but, if he engages busily in practice and neglects continuous nurturing of his talents with scientific journals and frequent replenishment at medical meetings or medical centers, he will eventually discover that he is distressingly behind, and it may then be necessary for him to take off several months for a complete overhauling Some of these physicians are the "cotton-farmers of medicine" (Cotton farmers know that instead of planting cotton every year they should periodically plant some such thing as soybeans to enrich the land, but this constitutes some loss of profit and it is postponed from year to year until the land is "worn out.") Pruning of the obsolete twigs of information on the scientific tree of knowledge and grafting on new facts are perennial duties The acquisition of a good critique as a medical student and house officer makes "the take" much easier

ADMINISTRATION AND CLINICAL INVESTIGATION

Growing pains have been associated with administration Similar difficulties were encountered in teaching with the introduction of students to the wards by Osler, and later the appointment of a staff for full-time work Also there was resentment to and failure of appreciation of the full-scale application of basic research to the solution of patients' problems Now, however, with better understanding of the values of the pillars of medicine they are mutually respected and welcomed by most physicians as valuable additions The main obstacles to good administration have been the failure to recognize how much it has to offer to teaching and research and the failure to realize its scope and the type of person required to handle it A good administrator of teaching and research must be more than a good business manager, economic expert, efficient logistician, and skilled personnel director He must be intimately acquainted with the problems and objectives of teaching and research in order that he may have an appropriate philosophy and goal, otherwise, he may do a beautiful job administering, but in the wrong direction— just as Roy Riegal who, in making a beautiful run in the Rose Bowl, headed for the wrong goal Although we do not consider making a man a football coach unless he has played football, it is evident that the best player may not make the best coach Likewise, in medicine there are good investigators who make poor administrators, but there are also "triple-threat" men who are adept at teaching, investigation, and administration Such persons are especially valuable The art of effective administration in clinical medicine requires great versatility, including intimate knowledge of teaching and research However, all of these skills are very valuable and the sooner the merits of each are recognized, respected, and appreciated the greater progress can be made in each direction, the happier the participants will be, and the richer will be the benefits to mankind The cause for good administration has been hurt somewhat by the deplorations by leading educators of researchers becoming administrators For example, Alan Gregg stated "The extraordinary feature of medical research in America in our times is the frequency with which demonstrated ability in research is rewarded by being extinguished " Whereas this does apply in some instances, in other instances the specific investigator, by assuming administrative responsibilities, may do less investigation, research in general may profit enormously For example, in my opinion it was the administrative feats of William H Welch as much as anything else that projected and sustained the ascension of the Johns Hopkins Medical School to heights of glory Arriving first on the scene, with a background of scholarship, broad interests, and great vision, he interested a group of young teachers and investigators in coming to that school, nurtured their activities in an optimal manner, and planned many new adventures that were to become patterns for the world in teaching and research Indeed, he remained "close to the steering wheel" for approximately 50 years Such a leader invokes many chain reactions with far-reaching benefits

Fig 7—The next show begins

Two factors, especially, indicate the great need for good administration in teaching First, the enormous volume of medical knowledge requires a large staff, very good planning, and excellent organization of the teaching program in order to attain optimal efficiency Second, it is very important that the teaching given by members of the same and other departments be coordinated and integrated There should be satisfactory continuity with neither too many omissions nor repetitions It is also important for the administrator to assure the appropriate orientation familiarity with and approval of the objectives, and the maintenance of a good and enthusiastic spirit among students and staff members

A good department of medicine should have as its chief a man engaged full time in teaching, research, and associated duties It is also best to have full-time staff members to head units in allergy, arthritis, cardiology, dermatology gastroenterology, hematology, infectious diseases, kidney diseases, metabolism, neurology, and pulmonary diseases They are all phases of internal medicine, but have varying degrees of deviation from the central core perhaps cardiology being closest and dermatology furthest away, each has its own phase of teaching and research that must be given special consideration It is generally best for these units to be well integrated in one department, yet permitted considerable freedom of operation With appropriate organization and good spirit, a considerable amount may be gained by this symbiosis and relatively little is lost

In the large departments of the better medical schools, research has assumed proportions of big business, utilizing a large number of personnel, great quantities of expensive equipment and supplies, extensive amounts of laboratory space, high-quality animal quarters, a research ward, etc Many problems arise concerning obtainment of funds, objectives in specific research, allocation of space and other items, recruiting of personnel, interpersonal relationships, responsibilities to patients, and interrelationships of teaching and research More than a quarter of a million dollars a year may be spent by one department Indeed, so much is at stake, both tangible and intangible, that it behooves an institution to be most careful in choosing a good executive paying particular attention to the honor and glory accorded, the duties involved and the remuneration An executive officer of a department should have as much assistance as possible from business offices and supersecretaries In order to do the best job as an administrator, he must continue to engage personally in research and teaching In addition to giving his position a better flavor, it makes him a better administrator, because he is more aware of the problems, develops a more realistic philosophy, and can formulate the objectives more clearly and accurately With these accomplishments and with the intermingling with other teachers and investigators, there is greater mutual respect and understanding of the value of smooth coordination of teaching, research, and administration, with less risk of undue infringement on the freedom of other investigators and teachers The administrator should not be one viewed by the investigator as a "necessary evil" who must be tolerated ("the more he stays out of the lab the better") The administrator should not visualize the investigator as being too narrow in knowledge to associate closely with him and his colleagues Between the better administrators and investigators no schism exists With the novice investigator, through misunderstanding, a problem sometimes develops regarding his freedom As stated by Kidd[8] "The varying capability of individuals sets limits on freedom Full freedom is not an immutable natural right of all investigators There is at times a tendency to identify 'the freedom of science' with the right of any investigator to complete independence Freedom is predicated upon the exercise of mature judgment by trained minds The right of an investigator to freedom in his work, i e, to plan his work and to receive the resources to carry it out, is earned by achievement Junior investigators must learn techniques and develop competence by working in collaboration with persons who have demonstrated their ability before extensive freedom of action and resources can be profitably put at their disposal "

Many of the great discoveries have been based on hypotheses that originally seemed illogical to most persons other than the discoverer Indeed, one reason why many major discoveries are made by young persons is that they have not yet learned many of the traditional dogmatic dictums than run counter to their hypotheses An example of this was related by Dr George Minot, Nobel prize winner for his work on the use of liver in the treatment of pernicious anemia After spending several months at the Peter Bent Brigham Hospital in what seemed to the physician-in-chief, Dr Henry Christian, as futile attempts to show that liver was efficacious, Dr Minot was called into the office of the chief and told something like the following "Minot, if you think liver is any good in the treatment of anemia why don't you transfer your patients to the Huntingdon Hospital [a less active, cancer hospital] and you can give them liver until your heart is content You are upsetting all the nurses and dietitians in the place " This, coming from the chief, left Dr Minot somewhat disconsolate, but on second thought he decided that it might be a good idea He transferred three of his patients One of them was an Italian patient who, curiously enough, loved raw liver and ate several times the quantity that had been recommended A reticulocyte response was observed This was the clue that ultimately led to the isolation of vitamin B_{12} Dr Henry Jackson told me that in the earlier phases of Dr Minot's study, Dr Francis Peabody asked him why Dr Minot continued to test the effects of liver when it had already been "proved" to be ineffective

Research Granting Agencies—Many of the large funds for research are granted on the recommendation of a board of scientists who analyze carefully the research proposal and the qualifications of the investigators Sometimes not enough freedom for the investigator is permitted when the judgment for grant awards is based predominantly on the way the application is written, particularly the experimental design, rather than on the background and characteristics of the investigator As Richter[9] mentioned, experimental designs tend to breed "team research," which "serves a purpose in developing and applying ideas, it rarely produces new ideas " Large teams increase the quantity of research, but sometimes at the expense of quality A poor investigator may write an excellent design of an experiment or vice versa Indeed, some of the best observations may be unrelated to the proposed experiments Careful study should be given both to the investigator and to his planned experiments, varying the degree of emphasis as indicated

One great concern about the present large scale of financial support for research is whether it can be maintained In the event of sudden withdrawal, the impact may be disastrous to research and teaching in some medical schools The grantors, as well as medical schools, have taken steps to help avoid this

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[8] Kidd, C V Research Planning and Research Policy Scientists and *Administrators*, Science **118** 147, 1953

[9] Richter, C P Free Research Versus Design Research, Science **118** 91, 1953

Effect of Standardization by Other Agencies—The various boards for certification of medical specialties have done a great deal to shape graduate teaching and have influenced research considerably Though many benefits are derived from such standardized programs, often there is too little flexibility for optimal progress House officer training programs are much too stereotyped As Christian[10] states " uniformity usually is based on scaling up the inferior and scaling down the superior, with resultant mediocrity"

Some medical journals have overstandardized the body of papers, but have not standardized the portion that certainly should be, the references Albright and others have demonstrated how sparkling individuality in medical prose lends greater interest, charm, and clarity than the usual superconventionality

PANORAMA OF MEDICINE

Medicine has a noble heritage with an abundant supply of intellectual giants, many of whom have glorified their profession and reached the empyrean Surgery, drug therapy, irradiation, psychodynamic approaches, and other methods have done an enormous amount to stimulate faith, assuage anguish, give hope and courage, replace sorrow with happiness, and bring about a much better state of health Many eulogies to the profession have been given, of which the following examples may be cited

> If a doctor s life may not be a divine vocation, then no life is a vocation, and nothing is divine —Stephen Paget.[11]

> For their patience with the stupid and the cowardly,
> for their quiet devotion to the inevitable truth,
> for their constant courage and unquenchable hope,
> for their cheerfulness even in the darkest hours,
> for their faith in humanity even when they see it at its worst,
> for what they have sacrificed and what they have forgiven,
> I for one am deeply grateful
>
> —Claude M Fuess[12]

> There are men and classes of men that stand above the common herd, the soldier, the sailor and the shepherd not infrequently, the artist rarely, rarelier still, the clergyman, the physician almost as a rule He is the flower (such as it is) of our civilization, and when that stage of man is done with, and only remembered to be marvelled at in history, he will be thought to have shared as little as any in the defects of the period, and most notably exhibited the virtues of the race Generosity he has such as is possible to those who practice an art, never to those who drive a trade, discretion, tested by a hundred secrets tact, tried in a thousand embarrassments and what are more important, Heraclean cheerfulness and courage So it is that he brings air and cheer into the sickroom and often enough, though not so often as he wishes, brings healing —Robert Louis Stevenson[13]

We of the medical profession like to respond to the beckoning call of greatness, experiencing titillation of our ego and resonation of our pride as we bask in the traditional glory of our noble profession, but how many of us have personally emanated enough brilliance in science and richness in humanism to dwell within the halo of so much praise and honor? In working with our patients do we have enough understanding deep-rooted sympathy, genuine interest, and loyal concern? When the problem is difficult and progress is slow, do we impart enough cheerfulness, warm friendliness, hope, and encouragement? With derelict, forlorn, and unreasonable patients, do we exhibit enough patience, tact, kindness, gentleness, forgiveness, generosity in time and attention, and faith in humanity? Do we give too much consideration to financial rewards? Do we have as much scientific knowledge and understanding as we should? Do we have enough spirit of fraternalism but very little jealousy and envy? You know as well as I that many of us are guilty in one way or another Many of us want to be called great but do not want to task the powers of our minds and bodies enough to be great In addition to attempting to correct our faults, we are obligated to do our share in increasing the stature and glory of our profession by nurturing with increasing intensity the roots of the science, our debt is not repaid solely by the honest, intelligent, and sound practice of medicine

ANTICIPATION IN MEDICAL PROGRESS

Research—Whereas all phases of research will continue to expand markedly, there will be an enormous increase in clinical investigation, including studies of basic phenomena and ones requiring very refined techniques Experience has shown the need for studying the function of organs in their natural status One may anticipate emphasis on (*a*) the effect of physical agents, e g , ultrasonics and cosmic rays, (*b*) enzyme systems, including enzyme adaptation, (*c*) physicochemical properties of genes and other individual intracellular components, and (*d*) the value of submicroscopic studies of normal and diseased tissue The parade of drug testing will increase enormously, and there also will be more extensive studies on the long-range effects, antagonisms, augmentations, and synergisms, drugs with improved specificity in actions will be utilized Surgery will make considerable progress, with plastic and other corrective procedures emphasized and with relatively less use for physiological alterations such as hypertension, thyrotoxicosis, benign prostatic hypertrophy, and cancer There will be a considerable increase in the money available for research, much more security, better organization and long-range planning, better integration, and more collaboration

Patient Care—Clinical research will be more abundantly and effectively practiced by all physicians Diagnoses will be better established, the type of therapy will be more specific, and its effects will be measured much more quantitatively The science of medicine will be blended more smoothly with humanism, and the latter will be practiced with greater skill There will be more systematic study of the environmental and social influences than ever before Enormous progress will be made in the understanding of psychobiological integrations and the role of psychodynamics in disease Medical economics will become much more satisfactory for patients and the average physician There will be a great increase in the small clinic type of practice

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[10] Christian H A Present Day Undesirable Trends in the Training of Physicians and of Teachers of Internal Medicine Ann. Int. Med. 33 533 1950

[11] Paget, S cited by Fuess, C. M As Others See You New England J Med 243 435 1950

[12] Fuess C. M As Others See You, New England J Med 243 435 1950

[13] Stevenson R. L. Works New York Charles Scribner & Sons 1909 vol. 16 p 91

Teaching.—There will be a considerable increase in the understanding of the mechanisms of disease and rationale for therapy. The student will become far more familiar with the principles of research and will develop an appropriate scientific critique. Problems of patients will be considered earlier in the medical school curriculum and thus will be the text for teaching simultaneously all factors concerned with a functioning unit, e. g., respiration and micturition. There will be many more conjoint exercises in medical school with much better coordination and integration of the teaching of different departments. The over-all objectives will be clearer, and there will be greater teamwork in their accomplishments. The student will be indoctrinated better with respect to the philosophy of medicine. There will be more emphasis on acquiring the appropriate approach and background for working out a patient's problem and less didacticism. There will be a great increase in the quality and quantity of postgraduate training.

It may be stated that while we can be proud of our rich accomplishments of the past, we look very hopefully to the future for making great contributions to human welfare and happiness. This will necessitate a greater integration of teaching, research, and administration directed toward the ultimate goal of better care of the patient in every respect.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

APPARATUS ACCEPTED

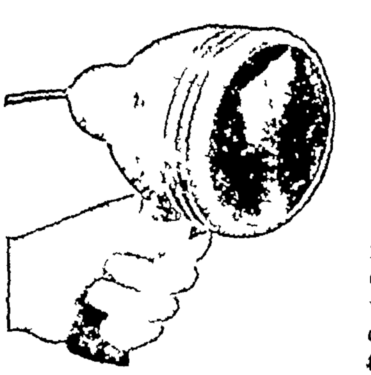
The following additional products have been accepted as conforming to the rules of the Council on Physical Medicine and Rehabilitation of the American Medical Association for inclusion in Apparatus Accepted. A copy of the rules on which the Council bases its action will be sent on application.

RALPH E. DE FOREST, M.D., *Secretary.*

Hague Cataract Lamp, Model 395

American Optical Company (Instrument Division), Box A, Buffalo 15.

The Hague Cataract Lamp, Model 395 (also referred to as the A. O. Hague Cataract Lamp) is designed to utilize, for diagnostic purposes, a band of ultraviolet radiation that adjoins the violet portion of the visible spectrum. If the lamp is lighted five to seven minutes before use, so as to reach equilibrium, it gives strong radiation around 375 mμ. Shorter wavelengths are absorbed by a special glass filter.


Hague Cataract Lamp, Model 395

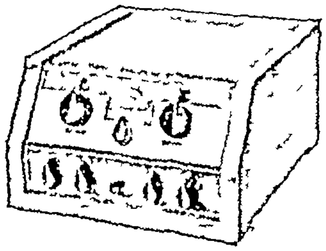
Transmitted wavelengths give fluorescence in the lens of the eye. Radiation from this lamp will also bring about fluorescence in merbromin, fluorescein, thimerosal, riboflavin, quinine sulfate, skin, fingernails, and normal tooth substance.

The apparatus requires 60 cycle alternating current at 120 volts and draws 100 watts. It is equipped with a handle and is connected by a cable to the transformer. The lamp and cord weigh 1 kg. (2 lb. 3 oz.), the transformer weighs 5.1 kg. (11 lb. 7 oz.). Packed for shipment the entire assembly measures 46 by 43 by 33 cm. (18 by 17 by 13 in.) and weighs 9.5 kg. (21 lb.).

Audivox Audiometer, Model 7B

Audivox, Inc. (Successor to Western Electric Hearing Aid Division), 123 Worcester St., Boston 18.

The Audivox Audiometer, Model 7B, is a pure tone audiometer for diagnostic purposes, which is available either as a portable (7BP) or as a desk (7BD) model. Packed for shipment it measures 42 by 48 by 29 cm. (16½ by 19 by 11¼ in.) and weighs 12.3 kg. (27 lb. 4 oz.). The shipping weight includes the following accessories: double headband, power cord, audiogram cards, spare fuse, matched phones, air receiver cords, instruction manual, and wrench kit. The following accessories are not included in the shipping weight: microphone, bone conduction receiver and cord, and adapter for bone receiver.

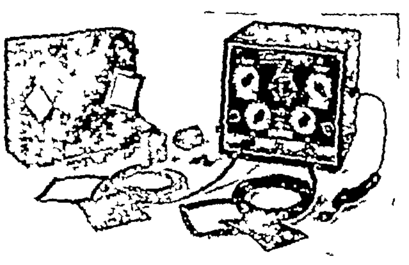

Audivox Audiometer, Model 7B

The instrument measures 30.5 by 41 by 20 cm. (12 by 16 by 8 in.) and weighs 9.6 kg. (21 lb. 4 oz.). It requires 60 cycle alternating current at either 110 to 120 volts or 220 to 240 volts; the power consumption is 35 watts.

Paust Electronic Stimulator, Model 50-C

Paust Manufacturing Co., 6011 Ridge Ave., Chicago 26.

The Paust Electronic Stimulator, Model 50 C, is a generator of low voltage currents that stimulates the contraction of normally innervated voluntary muscles. It is small and light enough to be carried about and set on a table. When the case is closed, it measures 34 (height) by 27 by 23 cm. (13¼ by 10¾ by 9 in.) and weighs 6.2 kg. (14 lb.). When the case is opened by removing the front, the slanting control panel is exposed. The apparatus requires a source of 60 cycle alternating current at 110 to 125 volts and draws 20 watts.

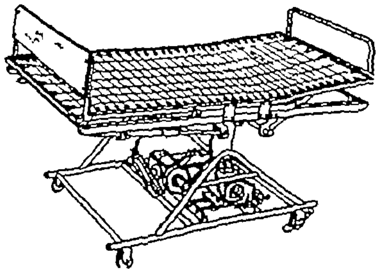

Paust Electronic Stimulator, Model 50-C

The control panel has two jacks marked "No. 1 Patient Circuit" and "No. 2 Patient Circuit." Between them is a switch marked "Circuit Control," which is so connected that in one position it causes the two patient circuits to operate simultaneously, whereas in the other position it causes them to alternate. For each of the two patient circuits a separate "Intensity Control" in the form of a dial is provided. In addition, there is a frequency control, a seconds-time control, a timer, a monitor light, and a place for a fuse.

Burns Rocking Bed, Model V-3

C. A. Burns, P. O. Box 1020, Denton, Texas.

The Burns Rocking Bed, Model V-3, is intended to provide artificial respiration for patients with partial paralysis of the respiratory musculature. The frequency of oscillation is adjustable from 13 to 30 oscillations per minute. The amplitude of oscillation, which also is adjustable, can be made as great as 27 degrees, while the mean position can be either a positive or a negative angle, that is, the patient's head can be higher than his feet most of the time or lower than his feet most of the time.


Burns Rocking Bed Model V-3

Crated for shipment, the bed measures 81 (height) by 198 by 96 cm. (32 by 78 by 38 in.) and weighs 136 kg. (300 lb.). The motor requires 60 cycle alternating current at 110 volts and draws 270 watts.

MEDICAL EDUCATION in the UNITED STATES and CANADA

FIFTY FOURTH ANNUAL REPORT ON MEDICAL EDUCATION IN THE UNITED STATES AND CANADA BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

Edward L Turner, M D , Walter S Wiggins, M D , Douglas D Vollan, M D., and Anne Tipner

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Introduction

At the Baltimore meeting of the newly organized American Medical Association in May, 1848, the Association received a report from its Committee on Medical Education, appointed the previous year, comparing medical education in the United States at that time with its counterpart in Europe The committee indicated that there had already been evidence of improved curricula in some of the American schools as a result of the establishment of the Committee on Education and its activities Since that time the medical profession has received an annual report, at first from its Committee on Education, then from the Council on Medical Education established in 1904, and since 1921 from its Council on Medical Education and Hospitals These reports to the A M A gradually evolved into the annual published report on medical education in the United States and Canada The current report is the 54th annual compilation prepared by the staff of the Council on Medical Education and Hospitals and covers the period from July 1, 1953, to June 30, 1954

This report includes data derived from official sources concerning schools of medicine and matters of information pertinent to medical education Such a compilation of data would not be possible without the cooperation of medical school administrative officials and others Due appreciation is extended by the Council on Medical Education and Hospitals to the many persons who have provided the information on which the current report is based

The significance of intercommunication in stimulating experimental advances in medical education has been highlighted during the past year by a number of important events The first of these was the publication in the summer of 1953 of the results of the resurvey of medical schools under the title "Medical Education in the United States at Mid-Century "[1] The information in this volume presented a comprehensive summary of the current activities and functions of a medical school and included a study of the costs of educating a medical student. It clearly indicated the multitudinous and complex activities of many schools where strict determination of the cost of medical education is exceedingly difficult. Furthermore, the relationship between the cost of basic medical education and the indirect cost of research, together with general trends in medical school financing, has been presented in a manner that has been most useful in the effort to bring about a clearer delineation of the various facets of institutional financing Conclusions and recommendations presented at the end of each major section of the volume have stimulated thoughtful discussion and further self-appraisal on the part of many medical schools

Another factor was the publication of the companion volume to the mid-century medical school survey under the title "Preparation for Medical Education in the Liberal Arts College "[2] This report by the subcommittee on preprofessional education of the Survey of Medical Education presented a stimulating and challenging picture of value to both students and teachers It was indicated that it is undesirable to distinguish the preprofessional student from other liberal arts students The volume presents many facets of preprofessional education that aid in bridging the gap between general and specific educational institutions It highlights the need for cooperative planning and mutual understanding on the part of preprofessional and professional faculties in achieving the breadth of background and knowledge desired in professional personnel

The First World Conference on Medical Education held in London Aug 22 to 29, 1953, under the auspices of the World Medical Association in collaboration with the World Health Organization the Council for International Organizations of the Medical Sciences, and the International Association of Universities, was another of the intercommunication events of widespread importance The general theme of the conference was undergraduate medical education Over 600 registrants representing 62 countries participated The material presented stimulated excellent thought-provoking discussions It was of interest to observe that, regardless of the nation concerned, the basic qualities being sought in persons desiring to enter the medical profession are much the same the world over The basic background and preparation of students for admission to the study of medicine has a fairly common denominator, while the methods, techniques, and actual needs in medical training itself vary greatly, depending upon the objectives being sought in various parts of the world to meet the specific medical and health needs of the different areas The proceedings of this conference are to be published by the Oxford University Press [3]

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[1] Deitrick J E., and Berson R. C Medical Schools in the United States at Mid-Century New York, McGraw Hill Book Company Inc 1953

[2] Severinghaus A E Carman H J., and Cadbury W E., Jr Preparation for Medical Education in the Liberal Arts College New York McGraw Hill Book Company Inc., 1953

From the standpoint of medical education in the United States, one of the most significant and valuable developments in intercommunication in recent years was the first annual institute conducted by the Association of American Medical Colleges the week prior to the 64th Annual Meeting of the Association in Atlantic City during October, 1953 This first annual institute centered its attention on the fields of physiology, biochemistry, and pharmacology Well over a year of careful preparation for the institute under highly competent leadership made it an outstanding experience for those who attended It was a sound, sincere self-analysis on the part of leaders in these fields to evaluate the current teaching and to interchange concepts as well as project experimental ideas The "Report of the Teaching Institute on Physiology, Biochemistry and Pharmacology" [4] has recently been released and merits widespread study There has been gratifying indication that representatives of the various medical schools attending the institute succeeded in communicating their enthusiasm for similar exchanges and discussions on the local level as they returned to their respective schools The Association of American Medical Colleges will conduct its second teaching institute centering attention on pathology, immunology, and genetics a week before its annual meeting at French Lick Springs, Ind , in October, 1954

The Congress on Medical Education and Licensure held its sesquicentennial session, February 7 to 9, 1954 The chairman of the Council on Medical Education and Hospitals at that time summarized the 50 years of Council activity [5] Problems of general current interest in the field of medical education and licensure were presented A panel discussion was held on professional orientation in undergraduate medical education A half day session was allocated to a report of the principal findings of the American Medical Association survey on postgraduate medical education, followed by a series of panels on (1) the objectives of postgraduate medical education, (2) how to achieve these objectives, and (3) the facilities, faculty, and financial requirements of postgraduate programs

Another important event was the publication of the eighth revision of the "Objectives of Undergraduate Medical Education" [6] emanating from the Association of American Medical Colleges Although still a document under development and revision, it has stimulated much discussion and analytical evaluation Since the objectives of undergraduate medical education are of such vital interest and importance in the development of the young physician preparing for the current and future practice of medicine, it is believed that they should be presented in this annual report on medical education so that they may be more widely read and analyzed by the medical profession and others It will be apparent to the reader that the medical educators who have been developing this statement on objectives believe that the creation of sound attitudes and understanding of professional and ethical principles are basic responsibilities of medical education, just as are the acquisition of scientific knowledge, the development of essential professional habits, and the achievement of basic skills It is furthermore clearly indicated that undergraduate medical education is an effort to create a foundation on which graduate experience and specialization may subsequently be developed The following is a direct quotation of the "Objectives of Undergraduate Medical Education" as they have been presented in the eighth revision

> Undergraduate medical education must provide a solid foundation for the future physician's development It should not aim at presenting the complete, detailed, systematic body of knowledge concerning each and every medical and related discipline Rather, it must provide the setting in which the student can learn fundamental principles applicable to the whole body of medical knowledge, establish habits of reasoned and critical judgment of evidence and experience, and develop an ability to use these principles and judgments wisely in solving problems of health and disease
>
> Undergraduate medical education cannot achieve these aims if the student is relegated to a passive role It must provide incentive for active learning on the part of the student This can best be done by giving him definite responsibility in real day to-day problems of health and disease This responsibility must of course be carefully graded to the student's ability and experience and must be exercised under careful guidance by the faculty
>
> Given incentive to learn and guidance toward the grasp of principles, with the problems of health and disease as a frame of reference, the student will build the necessary foundation for his career in medicine, be it practice (general or limited), teaching, research or administration
>
> In working toward this fundamental objective, undergraduate medical schools must strive to help the student to acquire basic professional knowledge, establish essential habits, attain clinical and social skills necessary to the best utilization of that knowledge, and develop those basic intellectual attitudes and ethical or moral principles which are essential if he is to gain and maintain the confidence and trust of those whom he treats, the respect of those with whom he works and the support of the community in which he lives
>
> These aims are obviously not distinctly separable, but mutually interdependent Altogether they summarize the desirable characteristics of the responsible professional person medical education is attempting to produce

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[3] Proceedings of First World Conference on Medical Education, London England, Oxford University Press, to be published

[4] Association of American Medical Colleges Report of the First Teaching Institute on Physiology, Biochemistry, and Pharmacology, 1953, J M Educ 29:(July, pt 2) 1954

[5] Weiskotten, H G Fifty Years of Council Activity report of the Council on Medical Education and Hospitals, J A M A 154 1200-1203 (April 3) 1954

[6] Association of American Medical Colleges The Objectives of Undergraduate Medical Education Eighth Revision J M Educ 28 57-59 (March) 1953

With the aims indicated above as a basis for specification, the more detailed objectives of undergraduate medical education have then been outlined [6]

Medical Schools

APPROVED MEDICAL SCHOOLS

With the approval of the programs of the University of North Carolina and the University of Puerto Rico there are now 74 fully approved four year medical schools and six approved schools of the basic medical sciences in the United States (table 1) Approval of the program of the University of British Columbia Faculty of Medicine has increased the number of approved medical schools in Canada to 11, with 1 approved school of basic medical sciences (table 2)

Data in these tables include years of premedical training required for admission in the 1955 class, the number of students enrolled in each class during the 1953-1954 academic year, the number of part-time or special students working toward M D degrees, and the number of students graduated during the period from July 1, 1953, to June 30, 1954 Data for the Canadian schools include, in addition, enrollment of students in the first and second premedical years, students enrolled in a fifth medical year, and those in a required intern year, where indicated A more detailed discussion of this material appears in other sections of this report

The name of the current dean or executive officer is listed in the final column Since publication of the last report, changes of chief administrative personnel have been made in 10 of the 92 medical and basic science schools of the United States and Canada New executive officers have been appointed by the University of California at San Francisco, the Medical College of Georgia, University of Illinois, Washington University, Cornell, State University of New York at New York City, Rochester, Southwestern, the University of Washington, and Dalhousie University

MEDICAL SCHOOLS IN DEVELOPMENT

The University of California at Los Angeles will admit its fourth class in 1954 and will be eligible for consideration for approval as a four year medical school The development of this institution's program has been followed closely by the Council, but, in accordance with long standing policy, approval is not granted to any medical school developing a four year program until representatives of the Council survey it after instruction has been instituted in all four years of the medical course In order to clarify the eligibility for internship appointments of the first University of California at Los Angeles senior group, the following action has been adopted by the Council

> Students who will graduate from the School of Medicine of the University of California at Los Angeles in 1955 will be considered as if they had graduated from an approved medical school Hospitals approved for intern training will not lose their approval if they accept these students for internship

The University of Mississippi is completing the construction program of its new hospital and medical school building at Jackson It is anticipated that the first regular third year class will be registered in the fall of 1955, although a small third year group may be enrolled in January, 1955, if developments make that possible The faculty for the clinical years is now being organized The University of Miami School of Medicine will admit its third year class in 1954 and plans to have all four years in operation by the fall of 1955 Currently, the faculty and the curriculum for the clinical years are being developed

The legislature of Missouri has appropriated $13,500,000 for the building program now underway at the University of Missouri, 9 million dollars of this is for hospital construction, $3,100,000 for a medical science building, and the remainder for a steam plant, laundry, and nurses' home The 441 bed hospital is currently under construction, and excavation for the medical science building is underway It is hoped that the developmental program will permit the 1953-1954 entering class to continue on into its third year of training at the University of Missouri

Last March the Albert Einstein College of Medicine of Yeshiva University reported that excavation was far advanced for the foundation of their new College of Medicine They anticipate that progress on construction will be sufficiently rapid to permit admission of a first year class in 1955 A number of initial key faculty appointments have been made A section of the teaching hospital center was scheduled for opening July 1, 1954, the service buildings for the center and the 511 bed Nathan B Van Etten hospital are completed and the Abraham Jacobi Hospital Unit is scheduled for completion Jan 1, 1955

The University of Florida at Gainesville has received a 5 million dollar appropriation from the 1953 legislature to develop the medical science building that will constitute the first unit of the College of Medicine Their schedule called for initial contract awards for building foundations during the spring of 1954 The dean has been appointed and according to current planning the school will admit its first class in 1956 At West Virginia University planning for their new medical center continues The heating plant is currently under construction, but no definite date has yet been advanced for registration of the first third year class In North Dakota the legislature has directed that the School of Medicine admit a third year class by 1955 and that a full four year program be in operation by 1956

On Aug 11, 1954, an announcement was made to the people of New Jersey that a corporation has been formed within the state to be known as the "Seton Hall College of Medicine and Dentistry" Correspondence from the college indicates that this is the initial step in the formation of a program of study in medicine and dentistry to be conducted in the Jersey City Medical Center They express the hope that the new college will be ready to accept students for the fall of 1955

The University of Kentucky's board of trustees on June 1, 1954, formally sanctioned the establishment of a medical school in Lexington to cost about 25 million dollars The university will request funds for the project from the Kentucky General Assembly Last March, the Kentucky Medical Sciences Development Foundation was formed to promote interest in the project and to

TABLE 1—*Approved Medical Schools and Schools of the Basic Medical Sciences in the United States*

		Four Year Medical Schools	1955 Premedical Requirement by Years	Students by Classes, 1953-1954 Freshman	Sophomore	Junior	Senior	Total	Part Time Special, and Irregular Students	Graduates July 1 1953 to June 30 1954	Executive Officer	
Ala	1	Medical College of Alabama Birmingham	3	80	74	80	61	295	3	61	James J Durrett M D Dean	1
Ark	2	University of Arkansas School of Medicine Little Rock	3	92	70	84	72	318	3	72	Hayden C Nicholson M D Dean	2
Calif	3	College of Medical Evangelists Loma Linda Los Angeles	3	95	87	90	93	365	1	92	Harold Shryock M D Dean	3
	4	University of Southern California School of Medicine Los Angeles	3	68	66	70	69	273		111*	Gordon F Goodhart M D Dean	4
	5	Stanford University School of Medicine Stanford San Francisco	3	58	62	60	57	237		61	Windsor Cooper Cutting M D Dean	5
	6	University of California School of Medicine San Francisco	3	76	76	81	76	309		74	*John B Lagen M D Assoc Dean*	6
Colo	7	University of Colorado School of Medicine, Denver	3	82	67	77	79	305	1	81	Robert C Lewis Ph D , Dean	7
Conn	8	Yale University School of Medicine, New Haven	3	79	78	82	64	303		63	Vernon Lippard, M D Dean	8
D C	9	Georgetown University School of Medicine, Washington	4*	120	113	114	108	455		107	Francis M Forster M D Dean	9
	10	George Washington University School of Medicine Washington	3	100	90	82	78	350		78	Walter A Bloedorn M D Dean	10
	11	Howard University College of Medicine Washington	4	79	75	75	70	299		69	Joseph L Johnson M D Dean	11
Ga	12	Emory University School of Medicine, Atlanta	3	72	73	70	70	285		70	Richard Hugh Wood M D Dean	12
	13	Medical College of Georgia, Augusta	3	79	76	76	73	304	9	73	*Harry B O Rear M D Dean*	13
Ill	14	Chicago Medical School, Chicago	4	72	75	64	69	280		137‡	John J Sheinin, M D President	14
	15	Northwestern University Medical School Chicago	3	131	129	137	136	533	2	136	Richard H Young M D Dean	15
	16	Stritch School of Medicine of Loyola University, Chicago	3	88	84	80	84	336		83	John F Sheehan M D Dean	16
	17	University of Chicago, the School of Medicine, Chicago	3	72	71	68	69	280	3	69	Lowell T Coggeshall M D Dean of Division of Biological Sciences	17
	18	University of Illinois College of Medicine, Chicago	3	167	159	172	169	667		169	Granville A Bennett, M D , Dean	18
Ind	19	Indiana University School of Medicine, Bloomington Indianapolis	3	151	153	133	138	575	3	139	John D Van Nuys, M D Dean	19
Iowa	20	State University of Iowa College of Medicine, Iowa City	3	119	114	109	116	458	2	116	Norman B Nelson M D Dean	20
Kan	21	University of Kansas School of Medicine, Lawrence Kansas City	3	111	117	123	105	456	3	105	W Clark Wescoe, M D Dean	21
Ky	22	University of Louisville School of Medicine, Louisville	3	100	96	93	92	381		92	J Murray Kinsman M D , Dean	22
La	23	Louisiana State University School of Medicine New Orleans	3	125	96	119	108	448	1	107	William W Frye M D , Dean	23
	24	Tulane University of Louisiana School of Medicine, New Orleans	3	135	121	132	128	516		128	M E Lapham, M D , Dean	24
Md	25	Johns Hopkins University School of Medicine, Baltimore	Degree	75	69	73	77	294		77	Philip Bard, Ph D , Dean	25
	26	University of Maryland School of Medicine and College of Physicians and Surgeons Baltimore	3	104	102	101	97	404		96	H Boyd Wylie, M D , Dean	26
Mass	27	Boston University School of Medicine, Boston	3	72	72	79	65	288		66	James M Faulkner, M D Dean	27
	28	Harvard Medical School Boston	2	115	120	148	148	531		148	George Packer Berry, M D Dean	28
	29	Tufts College Medical School, Boston	Degree	117	112	112	108	449		110	Joseph M Hayman, Jr M D , Dean	29
Mich	30	University of Michigan Medical School Ann Arbor	3	204	191	178	155	728		155	A C Furstenberg M D Dean	30
	31	Wayne University College of Medicine, Detroit	3	75	67	70	65	277	1	65	Gordon H Scott, Ph D Dean	31
Minn	32	University of Minnesota Medical School, Minneapolis	3	127	115	118	130	490		133	Harold S Diehl M D , Dean of Medical Sciences	32
Mo	33	St Louis University School of Medicine, St Louis	3	123	117	121	130	491	8	132	James W Colbert Jr , M D , Dean	33
	34	Washington University School of Medicine St Louis	3	86	85	99	96	366		96	Carl V Moore, M D , Dean	34
Neb	35	Creighton University School of Medicine, Omaha	3	76	76	78	70	300	2	70	F G Gillick, M D , Dean	35
	36	University of Nebraska College of Medicine Omaha	3	86	81	84	63	314		92	James P Tollman, M D Dean	36
N Y	37	Albany Medical College Albany	3	59	49	52	52	212		53	Harold C Wiggers Ph D Dean	37
	38	University of Buffalo School of Medicine Buffalo	4	71	67	71	70	279		70	Stockton Kimball M D Dean	38
	39	Columbia University College of Physicians and Surgeons New York	3	120	121	113	111	465		111	Willard C Rappleye M D Dean	39
	40	Cornell University Medical College New York	Degree	84	84	86	83	337		83	*E Hugh Luckey M D Dean*	40

	41	New York Medical College Flower and Fifth Avenue Hospitals New York	4	128	119	119	112	478		112	Ralph E Snyder M D Exec Dean	41
	42	New York University College of Medicine New York	3	130	145	133	122	530		121	Currier McEwen M D Dean	42
	43	State University of New York College of Medicine New York City	3	150	148	143	132	573	1	131	Howard Potter M D Acting Dean	43
	44	State University of New York College of Medicine Syracuse	3	76	72	70	67	285		66	William R Willard M D Dean	44
	45	University of Rochester School of Medicine and Dentistry Rochester	3	71	70	69	70	280	1	69	Donald G Anderson M D Dean	45
N C	46	Duke University School of Medicine Durham	3	79	79	70	82	310	1	80	Wilburt C Davison M D Dean	46
	47	Bowman Gray School of Medicine of Wake Forest College Winston Salem	3	54	45	50	51	200	2	50	C C Carpenter M D Dean	47
	48	University of North Carolina School of Medicine Chapel Hill	3	60	59	59	48	226	1	48	W Reece Berryhill M D Dean	48
Ohio	49	University of Cincinnati College of Medicine Cincinnati	3	90	84	88	90	352		89	Stanley E Dorst M D Dean	49
	50	Western Reserve University School of Medicine Cleveland	3	81	82	87	85	335	2	85	Joseph T Wearn M D Dean	50
	51	Ohio State University College of Medicine Columbus	3	150	160	130	130	575		130	Charles A Doan M D Dean	51
Okla	52	University of Oklahoma School of Medicine Oklahoma City	3	100	99	99	82	380		81	Mark R Everett, Ph D , Dean	52
Ore	53	University of Oregon Medical School Portland	3	75	73	67	52	267	21	50	D W E Baird, M D , Dean	53
Pa	54	Hahnemann Medical College and Hospital of Philadelphia	3	105	97	92	99	393		99	Charles L Brown M D Dean	54
	55	Jefferson Medical College of Philadelphia	3	171	163	169	163	666		163	George Allen Bennett M D Dean	55
	56	Temple University School of Medicine Philadelphia	3	131	128	125	132	516	1	132	William N Parkinson M D Vice President and Dean	56
	57	University of Pennsylvania School of Medicine Philadelphia	3	127	117	131	127	502		127	John McK Mitchell M D , Dean	57
	58	Woman s Medical College of Pennsylvania Philadelphia	4†	51	46	41	43	181		43	Marion Fay Ph D Dean	58
	59	University of Pittsburgh School of Medicine Pittsburgh	3	100	89	94	98	381	4	98	William S McEllroy M D Dean	59
S C	60	Medical College of South Carolina Charleston	3	80	72	68	55	275		55	John T Cuttino M D , Dean	60
Tenn	61	University of Tennessee College of Medicine, Memphis	3	210	183	189	159	750		159	O W Hyman Ph D Vice President and Dean	61
	62	Meharry Medical College Nashville	3	65	62	67	63	257	3	63	Daniel T Rolfe, M D Dean	62
	63	Vanderbilt University School of Medicine Nashville	3	53	50	48	55	206		54	John B Youmans M D , Dean	63
Texas	64	Southwestern Medical School of the University of Texas Dallas	3	100	93	102	99	394	5	98	A J Gill M D , Asst Dean	64
	65	University of Texas School of Medicine Galveston	3	161	154	160	134	609	11	133	Chauncey D Leake Ph D Exec Director	65
	66	Baylor University College of Medicine Houston	3	93	86	93	86	358	1	86	Stanley Olson M D Dean	66
Utah	67	University of Utah School of Medicine Salt Lake City	3	54	46	53	45	198	5	45	John Z Bowers, M D Dean	67
Vt	68	University of Vermont College of Medicine Burlington	3	51	47	48	43	189	1	43	George A Wolf, M D Dean	68
Va	69	University of Virginia School of Medicine, Charlottesville	3	76	76	68	72	292		70	Thomas Harrison Hunter M D Dean	69
	70	Medical College of Virginia Richmond	3	84	83	105	100	372		100	John B Truslow M D Dean	70
Wash	71	University of Washington School of Medicine Seattle	3	75	74	70	68	287	1	68	George N Aagaard M D , Dean	71
Wis	72	University of Wisconsin Medical School Madison	3	87	79	73	79	318	6	79	William S Middleton M D , Dean	72
	73	Marquette University School of Medicine Milwaukee	3	101	95	99	96	391	5	95	John S Hirschboeck M D Dean	73
P R	74	University of Puerto Rico School of Medicine San Juan	3	50	44	45	46	184	1	46	E Harold Hinman, M D , Dean	74
		Totals		7,223	6,856	6,983	6,727	27,789	121	6,801		
		Schools of Basic Medical Sciences										
Miss	1	University of Mississippi School of Medicine University	3	57	56			113	5		David S Pankratz, M D , Dean	1
Mo	2	University of Missouri School of Medicine Columbia	3	44	41			85			Roscoe L Pullen, M D Dean	2
N H	3	Dartmouth Medical School Hanover	3	21	22			40	1		Rolf C Syvertsen, M D , Dean	3
N D	4	University of North Dakota School of Medicine Grand Forks	3	38	32			70	5		Theodore H Harwood, M D Dean	4
S D	5	University of South Dakota School of Medical Sciences Vermillion	3	31	32			63	1		W L Hard, Ph D , Dean	5
W Va	6	West Virginia University School of Medicine, Morgantown	3	32	29			61			Edward J Van Liere, M D , Dean	6
		Totals		226	212			432	12			
		Grand Total (Four Year Schools and Schools of Basic Medical Sciences)		7,449	7,068			28,221	133			

Veterans, 90 semester hours
† In special cases 3 years
‡ Figures represent two classes Intern year requirement discontinued

receive funds from private sources, with its immediate objective being to file articles of incorporation and formulate building plans tentatively for July 1, 1955

It is of interest to indicate that if all of the projects described above are carried through to satisfactory completion that potentially 10 four year medical schools may be added to the list of four year medical schools during the period of the next five to six years In addition, during the course of the past year correspondence has come to the attention of the Council staff indicating that serious consideration is being given to the possible development of three other new medical schools in the United States

reorganization of outpatient teaching so as to afford continuity of student-patient experience, reduction of didactic instruction in both basic medical sciences and clinical fields, incorporation of minor specialty instruction into broader experiences in major clinical areas, improved supervision of preceptorship opportunities, and readjustments of time schedules through adoption of a quarter system in the clinical years or modifying the length of the academic year

Reorganization of certain parts of basic medical science teaching is now either accomplished or underway at Alabama, Emory, Indiana, Creighton, Albany, Western Reserve, Oregon, Temple, South Carolina, Baylor, Marquette, Utah, and the University of Washington At Alabama better integration of basic medical sciences and clinical sciences is being developed Emory has consolidated its basic medical science departments of anatomy, biochemistry, physiology, pharmacology, and bacteriology as university departments under a director of basic medical sciences Indiana has developed more closely integrated teaching in biochemistry, microbiology, and pathology, and Creighton has established a course in infectious diseases correlating medicine, microbiology, preventive medicine, and public health Creighton also has correlated medicine, pathology, microbiology, biochemistry, and microanatomy in its teaching of laboratory diagnosis During recent years this correlated and

TABLE 2—*Approved Medical Schools and Approved School of the Basic Medical Sciences in Canada*

	Medical Schools	1955 Premedical Requirement by Years	Students by Classes, 1953-1954									Graduates July, 1953, to June 30, 1954		
			First Premedical Year*	Second Premedical Year*	Freshman	Sophomore	Junior	Senior	Additional Year	Required Intern Year*	Totals*			
Alta	1 University of Alberta Faculty of Medicine, Edmonton	3			58	56	58	64			236	61	John W Scott, M D, Dean	1
B C	2 University of British Columbia School of Medicine, Vancouver	3			60	58	58	57			233	54	Myron M Weaver, M D, Dean	2
Man	3 University of Manitoba Faculty of Medicine, Winnipeg	3			61	64	65	77		61	267	58	Lennox G Bell, M.D, Dean	3
N S	4 Dalhousie University Faculty of Medicine, Halifax	3			58	53	52	49		51	212	53	C B Stewart, M B, Dean	4
Ont	5 Queen's University Faculty of Medicine, Kingston	2	64		59	60	64	59	53		295	53	G Harold Ettinger, M D, Dean	5
	6 University of Ottawa Faculty of Medicine, Ottawa	3	44		64	46	48	46		45	204	47	A L Richard, M D, Dean	6
	7 University of Western Ontario Faculty of Medicine, London	2			60	57	60	60			237	61	J B Collip, M D, Dean	7
	8 University of Toronto Faculty of Medicine, Toronto	2	128	118	150	150	145	160			605	160	J A MacFarlane, M B, Dean	8
Que	9 McGill University Faculty of Medicine, Montreal	3			113	103	114	110			440	110	G Lyman Duff, M D, Dean	9
	10 University of Montreal Faculty of Medicine, Montreal	Degree			126	103	95	99		96	423	99	Wilbrod Bonin M.D, Dean	10
	11 Laval University Faculty of Medicine, Quebec	Degree	120		140	119	85	135		135	479	134	Charles Vezina, M D, Dean	11
	Totals		356	118	949	869	844	916	53	391	3,031	896		
	School of Basic Medical Sciences													
Sask	1 University of Saskatchewan School of Medical Sciences, Saskatoon	2			33	32					65		J Wendell Macleod, M D, Dean	1
	Grand Total (Four year schools and Saskatchewan)		—	—	982	901	844	916	53		3,096	—		

* Intern and premedical enrollment not included in total column

DEVELOPMENTS OF MAJOR IMPORTANCE IN MEDICAL SCHOOLS

Analysis of the annual reports of medical schools submitted to the Council on Medical Education and Hospitals for the academic year 1953-1954 affords confirmation of the intellectual ferment constantly underway in these professional schools in the efforts of medical faculties to improve educational opportunities for medical students Curriculum study and reorganization is being actively conducted in many schools Curriculum changes being instituted include correlation and improved integration of basic science departmental activities, overcoming departmental isolationism, better correlation of basic medical science instruction with clinical teaching, cooperative approach to the teaching of laboratory diagnosis has been developed in several medical schools

Baylor has instituted a program of concurrent teaching of anatomy, physiology, and biochemistry throughout the first year No examinations are conducted during a given quarter, but comprehensive examinations are conducted at the end of each of the three academic quarters The school reports gratifying results as measured in terms of student interest, quality of work, and improvement in the degree of maturity and responsibility exhibited by students The effect of the frequent competitive quizzing with the psychological pressures inadvertently created by different departments on student interest, maturity, quality of work, and responsibility is a matter worthy of more serious consideration by all medical faculties in scrutinizing their methods of student evaluation

Vermont has instituted radical changes in its first year program correlating physiology with anatomy and biochemistry Departmental identity has been retained, but the material taught by these departments is related at any given time At Marquette, teaching in pathology and bacteriology has been carefully correlated Thus the trend to reduce rigid departmental "pigeon holing" and to utilize departments as cooperative factors in administrative convenience seems to be well established in many institutions

On the other hand, in keeping with the need for proper balance of responsibility, Albany has separated physiology and pharmacology into two separate departments, and New York Medical College reports a similar development At the University of Chicago, radiology, which has been a division of medicine, has been established as a separate department Maryland has established a new department of preventive medicine and rehabilitation Albany has separated anesthesiology from surgery as a new department

In line with the increasing emphasis on the simultaneous multidisciplinary approach to the teaching of clinical fields from the concept of man in his total environment, many interesting experimental programs are being conducted For instance, at Boston University, through a program made possible by a Commonwealth Fund grant, the departments of obstetrics, pediatrics, psychiatry, and preventive medicine sponsor a home study service One-third of the senior class is assigned to this service for a period of four months during which each student has an opportunity to observe patients over longer periods of time and in outpatient, ward, and home environments At Louisville, a Kellogg Foundation grant has made possible the establishment of an elective program called the "Family Health Program," which begins in the third year Student volunteers are assigned to selected families as student family physicians closely supervised by a team of instructors representing the various clinical specialties Albany has introduced a family health care program and continues its general practice preceptorship program, both of which have proven such satisfactory experiences that they are being continued and expanded

Vanderbilt has instituted a program of social and environmental medicine requiring regular visits in the homes of patients The student acts as a family health advisor among selected families and continues his contact throughout his entire undergraduate four years This program is designed to aid the student in learning the human aspects of illness as he observes the patient as a person, a member of the family unit, and of society and helps to create an early understanding of the principle and meaning of the physician-patient relationship and its significance in diagnosis and treatment

Western Reserve has completed the second year of pioneer experimentation in radical curriculum revision that is being scrutinized with interest by medical educators both here and abroad They find as a part of their curriculum study that there is room for great improvement in the care of ambulatory patients, and that this aspect of medical care assumes even greater importance in undergraduate teaching in view of the fact that new drugs make is possible to treat many persons in the outpatient department who were formerly admitted to ward beds Although similar observations have been widespread, adequate readjustments to the changed teaching value of the outpatient aspect of medical care are in general lagging It is the outpatient clinic in which the physician can best organize the group concerned with the care of the patient, including medical specialists, the nurse, the social worker, and all others who contribute to medical care, into a unified team Because of the amazingly rapid changes in medicine emanating from the research accomplishments of recent years, medical care, of necessity, must always remain fluid so as to take advantage of these new developments without delay Since the whole problem of medical care is inextricably interwoven with teaching medical students, interns, residents, and physicians, medical schools are challenged constantly to insure the most exemplary care in their teaching hospitals and clinics, for the finest of medical care is the core of good clinical teaching

The rapid increase in the number and importance of medical specialties during recent years has posed difficult problems in teaching schedules, particularly in the outpatient clinic In many outpatient departments students have been assigned to a few weeks on medicine, similar periods on surgery, pediatrics, and obstetrics and gynecology Then in rapid succession assignments carry the student through such specialties as dermatology, neurology, psychiatry, ophthalmology, orthopedics, urology, and so on Such a kaleidoscopic experience has lacked continuity of patient care throughout even a single illness and makes it difficult to develop the sense of responsibility for the patient as a person, which is one of the major objectives in medical education

A number of medical schools are, therefore, reorganizing outpatient clinic instruction in a variety of ways so that the student is assigned to patients rather than specific clinics in order to provide this continuity of patient study At the University of Pennsylvania, for instance, the student works day by day on some given service, such as medicine or surgery, but this is merely for the purpose of maintaining a proper balance in his experience and for the assignment of new patients Once the patient and his student-physician have made their first contact, the student carries that patient throughout the full cycle of his illness regardless of what special diagnostic procedure or treatment may be required

A similar system has been in operation since 1952 at the University of Oklahoma,[7] where students are assigned concurrently to all departments in the outpatient clinics and may follow their patients completely without losing the advantage of the "follow through" as they did in the traditional block system of assignment Cornell has conducted a somewhat similar plan for several years Wherever this type of program has been carefully instituted and well supervised, faculties are convinced that it is basically sound teaching, and there is evidence that the outpatient experience is far more satisfactory than the more traditional block type of clinic assignment

During recent years some medical educators have voiced concern over the belief that the fourth year in some medical schools did not seem to offer the same challenging experience to the medical student as has been presented during the first three years However, with these newer approaches to outpatient clinic teaching, the development of home care and hospital extension programs, preceptorships, additional elective clinic assignments, and elective research opportunities, the fourth year of medicine would appear to be assuming its potentially rightful place as the richest and most challenging one in undergraduate experience

TABLE 3 —*Recapitulation of Estimated Funds Available to Medical Schools, 1954-1955*

(Funds for construction and operation of major clinical facilities not included)

Category	Amounts
Budgeted funds and appropriations	$ 93 405,312
Funds for miscellaneous projects	4 976 812
Research grants from outside agencies	43 358 666
Teaching grants from outside agencies	6 874 411
Total	$148 615 201

As a note of caution in the development of these potentially valuable programs, it is important to indicate certain problems that may be associated with them One of the first and most important obligations in undergraduate medical education is adequate supervision of the medical student Family health care, hospital extension programs, preceptorships, and outpatient activities will be genuinely valuable experiences for the medical student only if planned with exceeding care and if they include all of the prerequisites of a true learning situation While the potentialities are outstanding, it should be an objective to place the student in his true situation as a learner He should be subjected to typical as well as to atypical problems He should be under the supervision of persons who, through precept and example, aid him in developing the attitudes as well as the knowledge requisite in good medical care Each school undertaking such experimental programs has a real responsibility in recognizing and fully appreciating the hazards as well as the advantages that may accompany them Through careful planning, adequate selection of personnel, close supervision, and repeated evaluation every possible effort should be made to insure that the potential hazards are minimized and the advantages fully realized

Albany Medical College reports that arrangements have been made with their teaching hospital to the effect that the hospital now aids in providing financial support for part of the school's clinical department budgets This arrangement is based on recognition of the fact that the excellence of medical care is directly related to the activities of the medical college personnel who in turn attract highly competent house staff with resultant over-all benefit to the hospital and its patients Both the University of Southern California and the College of Medical Evangelists receive substantial appropriations from the Los Angeles County Hospital in recognition of the professional services furnished through the activities of their clinical faculties in the supervision and care of patients associated with their teaching duties

Medical education has also been enhanced by the completion of, or initiation of, new physical facilities and remodeling of older buildings During the past year, medical schools report completed capital construction for basic medical sciences totaling $27,384,000 In this same period, $38,686,400 is reported for the initiation of basic medical science facility construction Completed construction of hospital facilities in connection with medical schools for the 1953-1954 period totals $31,099,574 and during the same period construction of hospital facilities has been initiated totaling $65,197,446 The schools also report that $1,226,000 was expended in newly completed medical student dormitory construction and that $6,130,000 is being expended on dormitory construction now underway

Although there are many other experiments and developments taking place in this field, those described illustrate the most interesting and significant trends in undergraduate medical education

MEDICAL SCHOOL FINANCING AND ESTIMATED FINANCIAL SUPPORT

For the past several years the annual report of the Council on Medical Education and Hospitals has presented data on the financial support of medical schools This information is based on the projected budgets of the medical schools for the next year so that estimates presented in the following material represent 1954-1955 budget figures The questionnaire requested (1) projected budgets exclusive of hospital or outpatient department costs, (2) grants for research, or (3) grants for teaching from outside agencies, and (4) special projects involving major expenditures not included in any of the above categories Funds involved in the items excluded from the basic operating budget are separately listed in the final grand total (table 3)

Because of the many variables involved in determining medical school financing it is not possible to state with certainty that all schools have interpreted their data in the same manner It is obviously difficult to divorce some aspects of medical service from teaching, because in the clinical fields, in particular, they become inextricably interwoven Furthermore, it is difficult to fully present true comparative budgets between medical schools because of the very nature of their differences in organization, differences in basic teaching and research activities, differences in their facilities, differences in the relationship of the schools with their teaching hospitals, and the variable methods utilized in financing faculty members teaching in the clinical departments

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[7] Bird R M, and Wolf, S Teaching Internal Medicine at University of Oklahoma School of Medicine A Program for Undergraduates, J A M A **154** 408-411 (Jan 30) 1954

One example of this latter problem is illustrated in the report of a school with a relatively low estimated budget, just under $500,000 In this institution tuition income is equal to approximately three-quarters of the total budget income However, the budget of this school is largely restricted to financing its administrative functions and its basic medical science departments with almost the entire cost of teaching in the clinical fields being carried by the affiliated teaching hospital through the full-time staff that it supports This school, therefore, does not present any data in its budget covering monetary value of the service rendered to its undergraduate teaching program by its faculty in the clinical departments Its clinical departmental personnel conduct a very active research program that receives support from outside grants that actually exceed the total estimated budget covering primarily its administrative and basic medical science programs If the budget of this school were to be made strictly comparable to that of the average medical school that supports both basic medical science and clinical departments it would be necessary to add the evaluation of the salaries paid by the affiliated teaching hospital to its faculty members in clinical departments In this particular instance such a readjustment would almost double the basic budget estimate of the school While this represents only one of the difficult problems associated with comparative analysis of medical school budgets it does, however, aid in a better understanding of why this school reports a "cost per student" factor considerably lower than the average presented by schools where all of the cost factors in education are adequately and accurately included At the other extreme, it would appear that an excessively high "cost per student" in an institution might represent the inclusion in the budget of factors that on close scrutiny should be chargeable to research or special activities other than that of medical education per se

For the academic year 1954-1955, the basic budgets of all of the medical schools in the United States total $93,408,312 On the basis of classification of schools according to the nature of their ownership, 41 private schools have budgets totaling $46,180,088, 36 state-owned schools have budgets of $44,186,508, and 3 municipally owned schools account for $3,041,716 This is the eighth successive year in which the medical schools report a major increase in available operating funds, the current total representing an increase of $5,999,312 Part of the increase is accounted for by the addition of one newly approved four year school with a budget of $880,000 This sum should be subtracted from the total increase to make possible comparison with the figures representing the increase in 1953-1954

Although the basic budgets of medical schools for 1954-1955 represent an increase of $5,999,312 over that of 1953-1954, it is to be noted that 21 schools report budget decreases totaling $2,672,217 Ten of the institutions reporting decreased budgets are privately owned, 10 state owned, and one is a municipal medical school The total of $93,408,312 represents basic operating costs and does not include research grants or special teaching grants obtained from outside agencies Neither does it include any significant portion of the cost of operating the teaching hospitals either owned or affiliated with medical schools However, $3,016,894 of the total represents expenditures for the operation of certain activities in teaching hospitals such as salaries of professional and technical personnel and special laboratory, clinic, or dispensary programs

On the basis of data available it is not possible to determine accurately the substantial financial contribution that a number of teaching hospitals render to the educational programs of their affiliated medical schools Furthermore, it is not possible to estimate the value of instructional services contributed by large numbers of volunteer, unpaid members of the teaching faculties of medical schools

Thirty-eight schools report 1954-1955 budgets of over a million dollars, three being over 3 million and eight others over 2 million dollars Six of the four year schools report budgets of less than $500,000 with one such school having a budget of less than $400,000

Estimated tuition fees for 1954-1955 will approximate $18,182,000, or 19 5% of the budget This represents a relative decrease of income in proportion to the total budget as last year tuition accounted for 20 6% and in 1952-1953 for 21 5% of the anticipated income As is well known, tuition fees vary widely from a very low level in some of the state schools, in which they represent an almost insignificant part of the available budget funds, to the position of representing three-quarters of the anticipated budget in one of the private institutions There are six medical schools in which anticipated tuition income accounts for over one-half of the total projected budget

Without exception all of the 80 medical schools have listed research grants from outside agencies in their 1954-1955 budgets These are estimated to vary from $11,000 in one institution to over $2,500,000 in one of the most active research institutions Thirteen schools anticipate such funds in excess of a million dollars and 18 others in excess of $500,000 The total amount anticipated from research grants from outside agencies to medical schools in 1954-1955 is $43,383,666 Since past experience has indicated that the anticipated total is usually substantially less than the amount received before the end of the year it is probable that the final figure will exceed the amount indicated above

The anticipated 1954-1955 budgets also indicate that all medical schools will receive teaching grants from outside sources varying from a low of $10,000 to a high of $246,405 The total amount listed in this category represents $6 874,411 Again, it is probable that this total will be augmented during the course of the year In addition to regularly budgeted funds, research and teaching grants from outside sources a number of institutions report funds for major expenses in the development of miscellaneous projects not otherwise included that total $4,978 812 Table 3 is a recapitulation of the estimated funds available to medical schools for 1954-1955 As indicated previously this table does not include funds for construction or operation of major clinical facilities

Comparison of the total of $148 645 201 estimate of funds available to medical schools for 1954-1955 with the estimate for 1953-1954 indicates an augmentation of

$16,336 201 As has been indicated in previous annual reports it is important to understand that the total of $148,645,201 shown in the table will support a wide spectrum of research and service as well as undergraduate medical education All schools of medicine today carry responsibilities for the teaching of other students in addition to medical students Furthermore, the constant search for new knowledge emanating from active research is a well-established function and an essential part of the activity of a modern medical school

In spite of augmented funds available to medical schools these institutions continue to face difficult and perplexing problems Faculty salaries in many instances have not kept pace with higher costs of living This has perhaps been more of a problem in the basic medical science fields than in some of the clinical areas, though some schools indicate that their clinical staff personnel in certain categories are seriously underpaid Undoubtedly, this has played a role in the increasing difficulty in recruitment of able young faculty, particularly in the basic medical sciences However, it is true that recent developments in the clinical fields have attracted more and more young scientists into the applied aspect of basic medical sciences This has created a new competitive factor in recruitment from the standpoint of the basic medical science departments themselves In some institutions this poses an increasingly difficult problem and should be given serious consideration It is possible that improved interdepartmental cooperation among basic medical sciences and certain clinical fields might materially strengthen both areas and reduce the currently existing competition for highly qualified basic medical science personnel, thereby enhancing recruitment of such persons in the basic medical science departments

As has been indicated in the section on major developments in medical schools, it is estimated that about $110,013,846 is budgeted for capital expenditures at the present time for construction and equipment of basic medical science, hospital and clinic, dormitory, and other facilities During the past year projects of this nature totalling $64,115,574 were completed In their overall estimates of needs, medical schools indicate that large sums are still needed for construction of new buildings, remodeling and modernization of existing facilities, and the purchase and installment of new permanent equipment There has been marked and steady improvement toward the solution of these problems during recent years, however, the adequate maintenance of currently existing and newly developing medical schools, together with the constant demand for the application of new knowledge and techniques in the interest of ever better medical care for the American public, implies a continuing need for augmented financing of medical education and research

NATIONAL FUND FOR MEDICAL EDUCATION AND AMERICAN MEDICAL EDUCATION FOUNDATION

The American Medical Education Foundation, which was established by the American Medical Association to seek contributions from the medical profession, and the National Fund for Medical Education, which was organized to seek contributions from business, industry, and other segments of our society, continued to make steady progress during the past year in raising unrestricted funds on a national basis to assist schools in securing more adequate financial support

On July 19, 1954, the National Fund for Medical Education disbursed $2,176,904 71, collected through the combined efforts of the two organizations, to the 74 four year and 6 basic medical science schools American medicine should take pride in the fact that $1,087,375 60 of this sum was contributed from the profession Individual contributors to the American Medical Education Foundation have increased from slightly over 3,000 in 1951 to 18,176 during the past year, which is indicative of the tremendous potential of support from the medical profession itself as more and more physicians join in helping to meet this challenge

TABLE 4.—*Number of New and Old Authorized and Budgeted Full-Time Positions by Departments in the Medical and Basic Science Schools of the United States, 1954 1955*

	New	Old	Total
Basic Science Departments			
Anatomy	4	21	25
Biochemistry	4	4	8
Physical chemistry		1	1
Physiology	9	7	16
Pharmacology	5	11	16
Microbiology	6	8	14
Pathology	6	21	27
Totals	34	73	107
Clinical Departments			
Internal medicine	13	10	23
Neurology	2	3	5
Dermatology and syphilology	1	1	2
Neurology and psychiatry	15	15	30
Surgery	6	13	19
Ophthalmology		4	4
Otolaryngology	2		2
Pediatrics	6	9	15
Obstetrics and gynecology	4	10	14
Radiology	1	10	11
Anesthesiology	4	1	5
Physical medicine		4	4
Preventive medicine	8	9	17
Totals	62	89	151
Analysis of Faculty Rank of Vacancies			
Basic Science Departments			
Full professors	4	10	14
Associate professors	5	22	27
Assistant professors	16	22	38
Instructors	9	19	28
Totals	34	73	107
Clinical Departments			
Full professors	12	19	31
Associate professors	6	15	21
Assistant professors	25	28	53
Instructors	19	27	46
Totals	62	89	151
Grand Totals	96	163	258

Over $6,826,900 has been disbursed by these two organizations to assist medical schools since the first grants were made in July, 1951 Both organizations continue to intensify their activities with the hope that through their combined efforts they may eventually be able to provide the medical schools of the nation with funds approximating 10 million dollars annually to aid in meeting the operational costs of their educational programs

MEDICAL SCHOOL FACULTIES

Medical schools in the United States reported 34 new and 73 old, for a total of 107, authorized and budgeted full-time positions currently unfilled in their basic medical science faculties In the clinical departments there are 62 new and 89 old, for a total of 151, authorized and budgeted full-time vacancies The over-all total (table 4) lists 258 vacancies in new and old budgeted full-time faculty positions Analysis indicates that 45 of these vacancies are professorships, 48 associate professorships, 91 assistant professorships, and 74 instructorships The total represents 25 vacancies less than were reported the previous year

TABLE 5—*Analysis of Status of Faculty Personnel in Clinical Departments*

Status	All Medical Schools United States	All Medical Schools Canada
Absolute full time salary (no other allowances)	2 153	25
Geographic full time (basic salary plus income from consultations etc)	2 078	32
Part time salary (practice income unlimited)	2,876	498
Volunteer status (no stipend)	21,328	620
Totals	28 435	1,175

In view of the marked differences existing in medical schools in regard to absolute full-time, geographic full-time, part-time, and volunteer arrangements of faculty personnel in clinical departments, each institution was requested to furnish information in regard to the employment arrangements for clinical personnel Inquiry was made as to how many faculty members of the clinical departments are employed under the following arrangements (1) absolute full-time salary, no other allowances, (2) geographic full-time, basic salary plus income from consultation, etc , (3) part-time salary, practice income unlimited, and (4) volunteer status, no stipend

Table 5 is an analysis of the status of faculty personnel in clinical departments prepared from the material submitted by the medical colleges in answer to the inquiry Twelve of the 74 four year medical schools and 3 of the 6 basic medical science schools in the United States indicated no clinical teachers were employed on an absolute full-time basis The other 65 medical schools reported absolute full-time clinical teachers varying in number from 2 to 253 Nine four year medical schools and four basic medical science schools reported no clinical teachers employed on a geographic full-time basis, while the remaining 67 reported numbers varying from 1 to 190 Three four year medical schools and one basic medical science school reported no part-time clinical teachers Only three of the four year schools and two of the basic science schools listed no volunteer faculty

All but 15 of the 80 medical schools in the United States now have a nucleus of absolute full-time or geographic full-time faculty or clinical teachers, under both such arrangements, who are concerned with administration, curriculum planning, teaching, and research Part-time and volunteer faculty members constitute by far the largest single group of teachers in the clinical fields, their duties varying from a few hours annually to large areas of responsibility Comparative data are given in the table for the Canadian medical schools

SCHEDULED CLOCK HOURS OF INSTRUCTION BY LECTURE

During recent years there has been a marked decrease in the amount of time devoted to the didactic lecture method of instruction in medical schools and a similarly marked increase in other methods of instruction designed to engage the active participation of the student As now utilized by leaders in medical education, the lecture, where retained, is not an oral diarrheal repetition of the printed page but is designed to highlight advances, indicate differences of opinion and their possible resolution, and to correlate material with texts and other current literature Small group and conference teaching has assumed a role of greater importance in general, and almost individual teacher-student relationships have become possible in many phases of instruction in the clinical fields Such methods entail active and stimulating participation of the student in his own self-education and confront instructors with constant challenges In many schools it is becoming the junior-colleague-senior-colleague relationship between student and teacher rather than the formal student-professor relationship that constituted the traditional approach in most institutions within recent memory and still permeates some As far as both teachers and students are concerned, constant preparation for the challenge of active conference participation represents something live and dynamic and is conducive to maximum teaching and learning experiences

In view of these trends, an effort was made to analyze the actual clock hours of scheduled lectures in each of the four years of the medical curriculum according to current schedules Forty of the medical schools submitted data that have made possible the following evaluation (table 6) The remaining medical schools did not submit an approximation of scheduled lecture hours but submitted their total scheduled hours, which would include all other assignments as well as lectures In the first year, scheduled lecture hours varied from a maximum of 605 to a minimum of 162, with an average of 366 and a median of 368 During the second year, scheduled lectures varied from a maximum of 672 to a minimum of 157, with an average of 466 and a median of 479 Thirty-four schools reported third year scheduled lectures from a maximum of 660 to a minimum of zero, with an average of 333 and a median of 300 Thirty-five institutions indicated a maximum of 384, a minimum of zero, with an average of 138 and a median of 125 scheduled lecture hours in the fourth year This statistical data should be of interest to all institutions engaged in curriculum study and planning from the standpoint of trends It also indicates the greater utilization of conference, group and individual student-teacher methods that are currently so effective in many schools

TABLE 6—*Scheduled Clock Hours of Instruction by Lecture*

	Year of Instruction			
	First	Second	Third	Fourth
Number of schools	40	40	34	35
Maximum	605	672	660	384
Minimum	162	157		
Average	366	466	333	138
Median	368	479	300	125

Students in Medical Schools

ENROLLMENTS

As has been true for the past five years, again this year the total number of students enrolled in approved medical schools in the United States established a new record *Enrollment data for this year are shown in table 1* Comparative data for previous years are given in table 7 In utilizing these data it should be noted that there are certain discrepancies in figures prior to 1942-1943 due to difficulty on the part of a few schools to classify students in conventional classes The total enrollment figure for approved four year schools and schools of basic medical sciences was 2% higher than last year Slightly less than half of this increase was due to the addition of the University of Puerto Rico School of Medicine to the list of approved schools and to the approval of the University of North Carolina School of Medicine as a four year school The latter was listed previously as an approved school of basic medical sciences, and its change of status adds its junior and senior classes to total enrollment figures It can be anticipated that total enrollment should continue to rise as the new schools and planned expansions in the schools of basic medical sciences reach the point of complete operation necessary for Council approval

TABLE 7 —*Schools Students, and Graduates in the Medical and Basic Science Schools in the United States, 1931-1954*

(Students in required intern year not included)

Year	Schools	Freshman	Sophomore	Junior	Senior	Total	Graduates
1930-1931	76	6 456	5,385	5 050	4 978	21,982	4,735
1931-1932	76	6 260	5 402	4,932	4,885	22,135	4,936
1932-1933	77	6,426	5,479	5 017	4,948	22 466	4,895
1933-1934	77	6 457	5 571	4,958	4 937	22 799	5,035
1934-1935	77	6,356	5 612	5 142	4 905	22 888	5 101
1935-1936	77	6 605	5 458	5 230	5,020	22 564	5,183
1936-1937	77	5 910	5 269	5,140	5,198	22 095	5 377
1937-1938	77	5 791	5 225	4 968	5 036	21,587	5 194
1938-1939	77	5 764	5 160	4 917	4 921	21 302	5,089
1939-1940	77	5 794	5 177	4 921	4 891	21,271	5,097
1940-1941	77	5 837	5,254	4 969	4 819	21 379	5 275
1941-1942	77	6 218	5,406	5,087	4,912	22,031	5 163
1942-1943	76	6 425	5 828	5,278	5 100	22 631	5 223
1943-1944	77	6 561	6 071	5 610	5,287	23 529	5,134
1944 (2d session)	77	6 618	6 140	6 051	5 791	24 660	5,169
1944-1945	77	6,523	5 979	5 700	5 826	24 028	5,136
1945-1946	77	6,060	5 750	5,751	5 655	23,216	5 826
1946-1947	77	6 564	5,575	5,767	5,994	23,900	6,389
1947-1948	77	6 487	5,708	5,154	5 340	22 739	5,543
1948-1949	78	6 688	6,191	5 702	5 080	23 670	5 094
1949-1950	79	7,042	6 344	6 079	5 638	25 103	5,553
1950-1951	79	7,177	6 690	6 263	6 056	26 186	6 135
1951-1952	79	7,436	6 816	6 577	6,195	27 076	6 080
1952-1953	79	7,425	7,063	6 725	6,475	27 688	6,668
1953-1954	80	7 449	7,068	6,983	6,727	28,227	6,861

Enrollments in the entering class were the highest yet recorded The increase over the previous year was due in its entirety to the addition of the University of Puerto Rico, which more than compensated for a slight decrease in freshmen enrollment in the schools as listed in the previous year It seems likely that new facilities will further increase the size of future freshman classes

The University of Tennessee and the University of Michigan each admitted to their entering classes more than 200 students (219 and 204 respectively) There were an additional six schools that admitted 150 or more freshmen students Six four year schools admitted less than 55 freshmen The median number of students for the first year classes in the four year schools was 86, and the average was 98 The average for schools of basic medical sciences was 38 In addition to the regularly enrolled full-time students discussed above, medical schools in the United States had 133 part-time and special students enrolled who were *working toward the M D* degree

Enrollment data for approved medical schools in Canada is *given in table 2* Total enrollment in Canada has increased since last year by 187, or 5 3% However, the University of British Columbia School of Medicine was added to the list of approved schools during the year covered by this report Its total enrollment of 233 more than compensated for the small decrease in total enrollment of the schools previously listed Enrollment in the entering class was increased 7% as compared to the preceding year Most but not all of this increase was due to the inclusion of the University of British Columbia Canadian schools had an additional 474 students enrolled in premedical years and 391 students enrolled in a required intern year These figures are not included in the total given in table 2

ENROLLMENT OF VETERANS

A substantial decline in the total number of both men and women veterans enrolled in medical schools in the United States again occurred There were 35% fewer veterans in the *medical* schools in *1953-1954* than in 1952-1953 despite an increase in over-all enrollment

Enrollment figures for veterans are given in table 8 Veterans comprised 11 6% (15 2 last year) of the freshman class, 12 9% (21) of the sophomore class, 18 8% (34 6) of the junior class, and 30 4% (46 6) of the senior class It is interesting to note that the greatest decreases occurred in the two upper classes, and that there was a tendency toward leveling off in the two lower classes Perhaps the higher figures for the upper classes represent a carry over from World War II, and the lower figures for the first and second year classes reflects mostly veterans from the Korean war

TABLE 8 —*Enrollment by Classes of Veterans and Nonveterans in the Medical and Basic Science Schools in the United States, 1953-1954*

	Men			Women			Total, Men and Women
Class	Veterans	Other	Total	Veterans	Other	Total	
Freshmen	863	6,160	7 023	3	423	426	7,449
Sophomores	911	5,782	6,693	4	371	375	7 068
Juniors	1,805	4 832	6,637	6	340	346	6,983
Seniors	2,040	4,332	6,372	6	349	355	6 727
Totals	5,619	21,106	26,725	19	1,483	1,502	28 227

ENROLLMENT OF WOMEN STUDENTS

There have been no significant changes in enrollment of women since the 1952-1953 report Information on the numbers, by school, of male and female students enrolled and graduated is given in table 9 Jefferson and Dartmouth continue to have no women students, and Woman's Medical College has no men enrolled

TABLE 9—*Distribution of Students and Graduates in the United States and Canada by Sex 1953-1954*

	Students		Graduates	
United States	Men	Women	Men	Women
Medical College of Alabama	253	12	59	2
University of Arkansas	296	22	68	4
College of Medical Evangelists	345	20	89	3
University of Southern California	259	14	135	6
Stanford University	220	17	57	7
University of California	257	22	66	8
University of Colorado	279	26	75	6
Yale University	286	17	60	3
Georgetown University	429	26	102	5
George Washington University	339	11	77	1
Howard University	265	34	69	10
Emory University	278	7	70	
Medical College of Georgia	289	15	70	3
Chicago Medical School	274	6	134	3
Northwestern University	508	25	129	7
Stritch School of Medicine	825	11	82	1
University of Chicago	261	19	62	7
University of Illinois	685	82	161	8
Indiana University	558	17	185	4
State University of Iowa	449	9	114	2
University of Kansas	443	13	101	4
University of Louisville	362	19	87	5
Louisiana State University	420	28	102	5
Tulane University	503	13	124	4
Johns Hopkins University	272	22	71	6
University of Maryland	384	20	90	6
Boston University	272	16	62	4
Harvard Medical School	494	37	133	10
Tufts College Medical School	432	17	105	5
University of Michigan	692	36	148	7
Wayne University	271	6	63	2
University of Minnesota	464	26	122	11
University of Mississippi	111	2		
St. Louis University	487	4	132	
University of Missouri	82	3		
Washington University	358	13	93	3
Creighton University	293	7	70	2
University of Nebraska	333	11	90	2
Dartmouth Medical School	46			
Albany Medical College	204	8	51	2
University of Buffalo	263	16	66	4
Columbia University	417	48	100	11
Cornell University	320	17	79	4
New York Medical College	453	25	104	8
New York University	495	35	116	5
State University of New York New York City	537	36	122	9
State University of New York Syracuse	274	11	65	1
University of Rochester	266	14	65	4
Duke University	301	15	77	3
University of North Carolina	221	5	46	2
Bowman Gray School of Medicine	192	8	60	
University of North Dakota	68	2		
Ohio State University	557	18	131	5
University of Cincinnati	347	5	89	
Western Reserve University	306	29	74	11
University of Oklahoma	370	10	77	4
University of Oregon	256	11	63	8
Hahnemann Medical College	376	17	94	5
Jefferson Medical College	666		163	
Temple University	491	25	127	5
University of Pennsylvania	478	24	123	4
University of Pittsburgh	370	11	95	3
Woman's Medical College of Pennsylvania		181		43
Medical College of South Carolina	265	10	53	2
University of South Dakota	62	1		
Meharry Medical College	246	11	58	5
University of Tennessee	715	85	152	7
Vanderbilt University	197	9	53	1
Baylor University	341	17	82	4
Southwestern Medical College	367	27	95	3
University of Texas	567	82	125	7
University of Utah	193	5	44	1
University of Vermont	180	9	39	4
Medical College of Virginia	343	29	91	9
University of Virginia	268	4	70	
University of Washington	274	18	65	3
West Virginia University	57	4		
Marquette University	378	13	93	2
University of Wisconsin	294	24	76	4
University of Puerto Rico	151	33	87	8
Totals	26 725	1 502	6,501	350
Canada				
University of Alberta	222	14	55	6
University of British Columbia	216	17	52	2
University of Manitoba	255	12	52	6
Dalhousie University	203	9	48	5
Queen's University	334 *	25 ‡	47	6
University of Ottawa	237 †	11 †	45	2
University of Toronto	[illegible]	8	150	16
University of Western Ontario	[illegible]	15	55	3
Laval University	578 §	27 §	133	1
McGill University	415	25	105	4
University of Montreal	393	30	90	9
University of Saskatchewan	59	6		
Totals	3 594	276	[illegible]	60
Grand Totals	30 619	1 778	7,385	420

Number of Premedical Students Excluded

	Men	Women
*	60	4
†	42	–
‡	220	2
§	115	5

	Men	Women
Number of Fifth Year Students Excluded	47	6

The total number of women students and graduates and the percentage of women to total students and to total graduates is given for each year since 1905 in table 10 Figures for the years 1905 through 1929 include data for all schools (class A, B, and C), those since 1929 include data only for approved schools Except for the years immediately following World War II, the percentage of women studying medicine and women graduates has remained quite stable

TABLE 10—*Women in Medicine in the United States*

Year	Women Students	Percentage of All Students	Women Graduates	Percentage of All Graduates
1905	1 073	4.1	219	4 0
1910	907	4 0	116	2.6
1915	592	4 0	92	2.6
1920	818	5.8	122	4.0
1925	910	5 0	204	5 1
1926	935	5 0	212	5 4
1927	964	4.9	189	4 7
1928	929	4.5	207	4.9
1929	925	4 4	214	4.8
1930	955	4 4	204	4.5
1931	979	4.5	217	4 6
1932	955	4.3	215	4.2
1933	1 056	4 7	214	4 4
1934	1 020	4.5	211	4.2
1935	1,077	4 7	207	4.1
1936	1 133	5 0	246	4 7
1937	1,113	5.1	[illegible]	4 4
1938	1,161	5 4	237	4 6
1939	1,144	5 4	269	5.1
1940	1,145	5 4	253	5 0
1941	1,146	5 4	280	5.3
1942	1 164	5.3	279	5 4
1943	1 150	5.1	241	4.6
1944	1 176	5.0	239	4 7
1944 (2d session)	1 141	4.6	252	4.9
1945	1,352	5 6	252	5.1
1946	1,868	8 0	242	4.2
1947*	2 183	9.1	342	5 4
1948	2,159	9.5	392	7.1
1949	2,100	8.9	612	12.1
1950	1,806	7.2	595	0 7
1951	1,564	5.9	468	7 6
1952	1 471	5 4	351	5 7
1953	1 463	5.3	363	5.5
1954	1,502	5.3	350	5.2

* Includes additional classes

ATTRITION OF MEDICAL STUDENTS

Medical school reports on student losses for the academic year just ended do not reach this Council in sufficient time for inclusion in the current report on medical education Therefore, all data referred to in this section deal with the academic year 1952-1953 During the year referred to, there was a total of 606 medical students in the 79 medical schools in the United States lost to medicine This figure includes losses due to academic failures and withdrawals for other causes It does not include students who withdrew from one school and successfully transferred to another, since such withdrawals do not represent a loss to medicine Table 11 depicts by class and cause this attrition

TABLE 11—*Medical Student Attrition in the Eighty Approved United States Medical Schools 1952-1953*

Class	Enrollment	Failed	Withdrew Poor Standing	Withdrew Good Standing	Total	Percentage of Enrollment Lost
Freshmen	7 425	234	15	130	379	5 1
Sophomores	7 063	70	16	[illegible]	[illegible]	2 1
Juniors	6 [illegible]	27	2	40	69	1 0
Seniors	6 475	2	2	9	13	0 2
Total	[illegible]	333	35	[illegible]	[illegible]	

Almost two-thirds of the students lost were in the first year class, representing about 5% of the total number enrolled in that class Only 2% of the students lost were in the senior class representing 0 2% of the total enroll-

TABLE 12 —*Residence of Freshman Medical*

Marginal Number	School	1 Alabama	2 Arizona	3 Arkansas	4 California	5 Colorado	6 Connecticut	7 Delaware	8 Dist of Columbia	9 Florida	10 Georgia	11 Idaho	12 Illinois	13 Indiana	14 Iowa	15 Kansas	16 Kentucky	17 Louisiana
1	Medical College of Alabama	80																
2	University of Arkansas			92														
3	College of Medical Evangelists			1	41	1				1		1						
4	University of Southern California School of Medicine	1	2		60	1									1			
5	Stanford University School of Medicine		1		51													
6	University of California School of Medicine				67													
7	University of Colorado School of Medicine		2			68												
8	Yale University School of Medicine	1	1		1		10		2				3	1		1		
9	Georgetown University School of Medicine						8		7	2							1	
10	George Washington University School of Medicine		2		20		1		13			4	2	1				
11	Howard University College of Medicine	4			2		3	1	8	2			2					2
12	Emory University School of Medicine	3								26	27	1		1				
13	Medical College of Georgia										79							
14	Chicago Medical School		1		2	1				1			4					
15	Northwestern University Medical School	1	1		10	1	1						48	5	2		1	
16	Stritch School of Medicine of *Loyola University*	1		1	2								50	2	1		1	
17	University of Chicago the School of Medicine		1		11	1				2	1	2	15	[illegible]	1		1	
18	University of Illinois College of Medicine												107					
19	Indiana University School of Medicine												1	144				
20	State University of Iowa College of Medicine	1	1		1								4	1	105			
21	University of Kansas School of Medicine				1							1	1			98		
22	University of Louisville School of Medicine									1				1			86	
23	Louisiana State University School of Medicine																	125
24	Tulane University of Louisiana School of Medicine	6	2	5	3		1			14	4		2	1		2		21
25	Johns Hopkins University School of Medicine		1	1	4		2	2	1	2	1		2	1	1			
26	University of Maryland School of Medicine	1	1		2		2	1	1	1								
27	Boston University School of Medicine						5						1					
28	*Harvard* Medical School	1	4		7	2	3			3			5	1		1	1	
29	Tufts College Medical School						13						1					
30	University of Michigan Medical School		1										3	3				
31	Wayne University College of Medicine																	
32	University of Minnesota Medical School				1								1					
33	University of Mississippi School of Medicine																	
34	University of Missouri School of Medicine																	
35	St Louis University School of Medicine		2	1	7	1	2		1	2	1		11	3	1	1		1
36	Washington University School of Medicine		2	1	16	1	1			2		2	8		2	3	1	1
37	Creighton University School of Medicine				5	2	1					2	4		5	2		
38	*University of Nebraska* College of Medicine				1													
39	Dartmouth Medical School				2	2	1		1				2					
40	Albany Medical College					1	1						1					
41	University of Buffalo School of Medicine		1		1								1	1				
42	Columbia University College of Physicians and Surgeons				1		6		2	1	1			1	1		2	
43	Cornell University Medical College		2		1		2				1	1	1			1		
44	New York Medical College Flower and Fifth Avenue Hospitals				3		14											
45	New York University College of Medicine						5						1					
46	State University of New York College of Medicine, New York City																	
47	State University of New York College of Medicine, Syracuse						1			1								
48	University of Rochester School of Medicine and Dentistry						3			1			1	2			1	
49	University of North Carolina School of Medicine																	
50	Duke University School of Medicine	1			2			1	1	10	3							1
51	Bowman Gray School of Medicine of Wake Forest College	1			3					8	2		1					1
52	University of North Dakota School of Medicine															1		
53	University of Cincinnati College of Medicine				1								2	1			1	
54	Western Reserve University School of Medicine				1		1			2			2					
55	Ohio State University College of Medicine																	
56	University of Oklahoma School of Medicine																	
57	University of Oregon Medical School											8						
58	Hahnemann Medical College and Hospital of Philadelphia		1		1					1			1					
59	Jefferson Medical College of Philadelphia				3		1	1		1		1	1					
60	Temple University School of Medicine				3		1	3		1				1				
61	University of Pennsylvania School of Medicine	1	2	1					3	3							1	
62	Woman's Medical College of Pennsylvania	1	1		6		1		1	1			2					
63	University of Pittsburgh School of Medicine																	
64	Medical College of South Carolina																	
65	University of South Dakota School of *Medicine*				1							1	2		2			
66	University of Tennessee College of Medicine	7	3	15						19	3		1				8	1
67	Meharry Medical College	4			3				2	9	6		2					4
68	Vanderbilt University School of Medicine	1			3					5			1		1		8	
69	Southwestern Medical School of the University of Texas																	
70	University of Texas School of Medicine																	
71	Baylor University College of Medicine		1	2	1						1							
72	University of Utah School of Medicine				2							6						
73	University of Vermont College of Medicine						10						2					
74	University of Virginia Department of *Medicine*	1						1	1	4								
75	Medical College of Virginia									1								
76	University of Washington School of Medicine						1					1						
77	West Virginia University School of Medicine																	
78	University of Wisconsin Medical School																	
79	Marquette University School of Medicine				3								12		1			
80	University of Puerto Rico School of Medicine															1		
	Totals	117	36	120	356	82	101	10	44	127	130	31	377	172	124	111	113	157
81	University of Alberta Faculty of Medicine																	
82	University of British Columbia School of Medicine				2													
83	University of Manitoba Faculty of Medicine																	
84	Dalhousie University Faculty of *Medicine*																	
85	Queen's University Faculty of Medicine						1											
86	University of Ottawa Faculty of Medicine												1					
87	*University* of Western Ontario Faculty of Medicine																	
88	*University* of Toronto Faculty of Medicine																	
89	*McGill University* Faculty of Medicine				7		1	1			1		2					
90	University of Montreal Faculty of Medicine																	
91	Laval University Faculty of Medicine																	
92	University of Saskatchewan College of Medicine																	
	Totals	0	0	0	9	0	2	1	0	0	1	0	3	0	0	0	0	0
	Grand Totals	117	36	120	365	82	103	11	44	127	131	31	380	172	124	111	113	157
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

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* Figures include two freshman classes

† Figures are for students in beginning premedical year

Students in the United States and Canada 1953-1954

18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	
																																			Summary			
Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U S Territories and Possessions	Canada	Foreign	Home State	Out of State	Totals	Marginal Number
																																			89		89	1
																																			92		92	2
	3	2	3			1	2	2					1			4	1	9				1	1					2	1	1		2	7	7	41	54	95	3
											1							1	1																60	8	68	4
								1			1		1			1									2										51	7	58	5
					1													3							1		1					1		2	67	9	76	6
							1					6																			5				68	14	82	7
4	2	8	1			1					15		16			3			6	1									1			1			10	69	79	8
1	1	10	1								13		56			4			12	2							2		1	1		2		1	7	113	120	9
1	9				1	1			1		2	1	14			2		1	4					1	3		4		2	3		2		5	13	87	100	10
	3		3		2	1					5		9	6		2	1		6		5						2					2		8	8	71	79	11
					1	2					1		3			1					2		1				1		1					1	27	45	72	12
																																			79		79	13
			1								7		50						3										2						4	68	72	14
			4	1		2	6	1			5	1	12		1	8	2	1				1		1				1	1	6	2	5			48	83	131	15
		1	1	1			1				2		5			6		1	1			1						1		2				1	56	32	88	16
		1		1				1			1		14			5			2	1				1				3		1				5	15	57	72	17
																																			167		167	18
													2			1			2															1	144	7	151	19
						1		1					2															1						1	105	14	119	20
						8																												2	98	13	111	21
											1		7	1															2					1	86	14	100	22
																																			125		125	23
		2			25	3					2		5	2		2			2				8	16			1		1			4		6	21	114	135	24
	14	1	3			2					2		7	1			1		8		4			5			2	1					1	5	14	61	75	25
1	61	2	1							2	4		4			2			2						5				3			6		2	61	43	104	26
1		34								1	5		13						2	5												1		4	34	38	72	27
2	1	23	1	1		2					6		17	3		9	1	1	4	2		1		3				2					2	6	23	92	115	28
8		75								2	4		5			1				6				1				1							75	42	117	29
			175								4	1	3		1	6						1								1		4	1		175	29	204	30
			75																																75		75	31
				121		1																												3	121	6	127	32
					57																														57		57*	33
						44																													44		44	34
	1	3	4	6		18	6			2	2	1	8			16		2	5					1				6		2				4	18	105	123	35
		2	1		1	10	4						4				1	2	1		1			4				1		1		2		2	19	67	86	36
			1	5		1		19			5		5		1	1		2				1						8			2	2		2	19	57	76	37
							1	79					1							1		1												2	79	7	86	38
								1		2	2		4		1	3		1	1	1															2	22	24	39
		1									4		47	1						1						1								1	47	12	59	40
											2		60			1			3														1		60	11	71	41
1	3	7	1	2		1	1				13		63	1		1	1		6	1				1										2	63	57	120	42
		4				1					17		43			1		1	1		1					1	1	1						3	43	41	84	43
		4			1						22		78			1				4					1										78	50	128	44
		1									15		105						1							1								1	105	25	130	45
											10		136	1						1												1		1	136	14	150	46
											1		71			1																		1	71	5	76	47
1		1									1	1	40		1	3			6										2		4	1		2	40	31	71	48
														60																					60		60	49
	2				1	2					2		8	35					2		3						2		2					1	35	44	79	50
											1		2	29		1	1		1		2						1								29	25	54	51
				3											82	1																1			82	6	88	52
		2				1					2					75			1						1				2			1			75	15	90	53
		1	1			1					2		3		1	55			5									1				2		3	55	26	81	54
																150																			150		150	55
																	100																		100		100	56
							3					1						56										4				1	1	1	56	19	75	57
			1								18					5			74										1			2			74	31	105	58
		1	1								17		6			7			122					1					4			1		3	122	49	171	59
	1					1		1			19		5			1	1		85						1			1	2	1		3			85	46	131	60
	1	4	2		1						13		10	3		4			73				1				1		2			1			73	54	127	61
		1									4		12			1			17											1				2	17	34	51	62
																2			98																98	2	100	63
																				89															89		89	64
				1				1					1		1							21													21	10	31	65
					12	2					1		2	5			2				1		129	3			2		1					2	129	90	219	66
	2		1		7	2					1		3	3		1					8		7	8			2								7	65	65	67
					1	4						1	4			2			1				19						1					1	19	34	53	68
																								160											160		160	69
																								161											161		161	70
					2	2										1	2							78										3	78	15	93	71
							1						1												44										44	10	54	72
2		1								3	5		5			1				1						21									21	30	51	73
	1										1		4										1				5		3					1	58	18	76	74
											1		2			2			1								73		3			1			73	11	84	75
							1											1										71							71	4	75	76
																													32						32		32	77
													2											1						81					81	3	[illegible]	78
			4	2		2					1		6			4			1			2						1		60		1		1	60	41	101	79
													1																					1	47	3	50	80
22	105	192	286	146	113	126	27	107	1	12	[illegible]	13	[illegible]	151	39	395	114	82	560	27	102	30	162	[illegible]	58	24	153	106	70	104	13	97	13	101	5,077	[illegible]	7,449	
																																	[illegible]		[illegible]		[illegible]	81
																																	53	[illegible]	53	[illegible]	60	82
																																	[illegible]	6	[illegible]	6	61	[illegible]
		1											1																				54	2	54	4	[illegible]	84
													7															1					53	2	53	11	64	[illegible]
1		2								1			5																				50	4	50	11	61	[illegible]
																																	60		60		[illegible]	[illegible]
																																	[illegible]		12		12	[illegible]
2		4	1							2	1		12			4			1					1				[illegible]				1	[illegible]	[illegible]	[illegible]	[illegible]	113	[illegible]
										1																							[illegible]		[illegible]	1	1	[illegible]
		1								1																							117	1	117	3	[illegible]	[illegible]
																																	[illegible]		33		[illegible]	[illegible]
3	0	8	1	0	0	0	0	0	0	5	1	0	25	0	0	4	0	0	1	0	0	0	0	1	0	0	0	[illegible]	0	0	0	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
25	105	200	287	146	113	126	27	107	1	17	[illegible]	13	[illegible]	151	39	[illegible]	114	82	561	27	102	30	[illegible]	[illegible]	[illegible]	24	153	114	[illegible]	104	13	[illegible]	[illegible]	[illegible]	[illegible]	2,475	[illegible]	
18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	

ment in that class Attrition due to academic failure (55 5%) and withdrawals in poor academic standing (5 5%) for all classes combined account for approximately two-thirds of all losses The remaining one-third were losses due to withdrawal of students in good standing

It is perhaps of some importance to note that the lowest relative incidence of withdrawals in good academic standing was in the freshman class, in the upper three classes almost half of all losses were in this category It is unfortunate that detailed information in regard to this group is not available, for many of these students apparently had sufficient intellectual ability for the study of medicine It seems possible that some of the losses in this category might have been prevented had it been possible to offer additional financial assistance, guidance, and counseling

There were no failures in the freshman classes of 25 schools, including five two-year schools There were less than 5% first year failures in 35 schools, including one two-year school, between 5 to 10% such failures in 13 schools, and more than 10% in six schools, including one two-year school As compared to the over-all freshman failure rate of 5 1%, the highest rate reported by any individual school was 17% The percentage of failure for classes other than the first year class was not significantly different in those schools reporting no freshman failures than in all other schools Neither was there any significant difference found in withdrawal rates

Fourteen medical schools, 13 state supported and 1 city supported, admitted to their freshman classes in 1952-1953 only residents of the state in which the school is located The failure rate for freshmen in these schools was essentially double (5 5%) that for all other schools (2 8%) Computations made from material presented by Stalnaker [8] indicate that these 14 schools had in the year under consideration 2 7 applications for each position available as compared to 8 6 applications for each position available in all other schools Three of these 14 schools were schools of basic medical sciences Two of the three were the only schools in their respective states, so that their students upon completion of the two year course of study were in the position of having to seek advanced standing in a medical school in another state even though their own institution accepted no students from other states

During the year 1952-1953, there were 101 freshmen who had originally enrolled in another year but were listed for this year as repeaters These were distributed in 33 schools, 89 repeating as a result of scholastic difficulty and the remainder because of illness In any of the institutions concerned where there is a fixed number of positions available in the entering class, freshman students repeating the year can represent a loss to medicine Although the alternatives are such as to make such losses inevitable, any calculation of total losses to medicine would have to take this group into consideration

As opposed to the attrition rate in the entering class of 1952-1953 of 5 1%, the attrition rate for freshmen 15 years ago was 9 4%, 20 years ago 14 1%, and 25 years ago 14 4% It is not possible to ascribe this significant change to any specific cause with complete certainty However, it surely is not unreasonable to presume that it must be due in part to improved selection methods and greatly intensified efforts in the area of student guidance and counseling

GEOGRAPHIC SOURCE OF FRESHMAN STUDENTS AND THE RELATIONSHIP OF PRIVATE AND GOVERNMENT-OWNED MEDICAL SCHOOLS

The "state of residence" can be interpreted in many ways under different circumstances Since, at times, it may be to the advantage of a medical student to claim as his place of residence the state in which the medical school he is enrolled in is located, it is impossible to declare that the material presented in this section is in fact based on the legally permanent residence of medical students The data were derived from the enrollment information submitted by the medical schools, and the only claim that can be made is that designated places of residence were apparently acceptable to the schools themselves

It also seems advisable to again remind the reader that figures relative to enrollment of students include data from only those schools listed, all of whom are fully approved by the Council on Medical Education and Hospitals Figures from schools that do not as yet have complete programs in effect are not included, since such institutions are not eligible for Council approval Figures for students enrolled in approved schools who were dropped or withdrew during the academic year are included, but figures for students who were accepted for enrollment but who withdrew before actual enrollment are not included Reference has been made in previous sections of this report, and will be made again in this section, to Stalnaker's report, "The Study of Applicants " [9]

Apparent discrepancies between enrollment and geographic source of students in that study and this report are accounted for by the qualifications given above

Table 12 presents the residence of students at the time of their enrollment in the 1953-1954 entering classes in all approved medical schools in the United States and Canada Study of this table reveals that 41% of all first year students in the United States came from six states (New York, Pennsylvania, Ohio, Texas, Illinois and California) According to "The Study of Applicants,"[9] prepared by the Association of American Medical Colleges, 43% of all applicants came from these same six states

There were fewer than 25 freshman students from each of seven states (Delaware, Maine, Nevada, New Hampshire, New Mexico, Vermont, and Wyoming) and a total of 95 students, representing 1 3% of the total first year class enrollment from these states Stalnaker's study indicates that 1 4% of all applicants came from these seven states

Table 13 lists states in ascending order according to the number of enrolled first year medical students per 100,000 population It can be seen that the six states heavily represented by freshman students are well scattered throughout this list, with half of them having fewer first year medical students than the median (4 5 per

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[8] Stalnaker, J M The Study of Applicants, 1952 1953, J M Educ 28 21-28 (Feb) 1953

[9] Stalnaker J M The Study of Applicants, 1953 1954, J M Educ 29 13 20 (April) 1954

100,000) and half having more However, the seven states whose residents are poorly represented in the first year classes of approved medical schools have, with one exception, fewer freshman medical students enrolled than the median, and five out of the seven occupy the first five positions as states with the fewest number of students per 100,000 population It is interesting and possibly significant to note that within the six heavily represented states are located 29 (36%) of the 80 approved schools In the seven states poorly represented only one four year medical school is located

In 15 approved medical schools, enrollment of first year students was restricted to residents of the state in which the school is located Fourteen of these are state-supported schools and the other is municipally supported From information contained in Stalnaker's study, it can be shown that there were 2 5 applications per available position in these schools as compared to 7 4 applications per position in all other schools In another section of this report (attrition of medical students) similar data are given for the 1952-1953 entering class, and it is to be noted that the failure rate among 1952-1953 freshman students in these schools with complete restriction of enrollment to in-state residents was almost double that for first year students in all other schools As was true for the 1952-1953 class, three schools of the basic medical sciences limited enrollment completely to state residents Two of these three schools are the only medical schools located in their respective states

TABLE 13 —*Ratio of Freshman Students to State Population, 1953-1954*

Numbers of students per 100 000 population * in the medical and basic science schools of the United States

†New Mexico	1 7	Connecticut	4.6
†New Hampshire	2.3	South Carolina	4 6
†Maine	2.5	Wisconsin	4.6
†Nevada	2.5	Ohio	4 7
†Delaware	2.8	South Dakota	4 7
California	2.9	Iowa	4 8
Missouri	3 1	Minnesota	4.8
†Rhode Island	3.2	Tennessee	4.9
Georgia	3 6	Oregon	5 0
North Carolina	3 6	Oklahoma	5 1
West Virginia	3 6	District of Columbia	5.2
Alabama	3.8	†Idaho	5.2
†Florida	3.9	Mississippi	5.2
Kentucky	3.9	†New Jersey	5.2
Massachusetts	3.9	Pennsylvania	5.2
†Arizona	4.0	Kansas	5.5
Illinois	4 1	Colorado	5 6
Indiana	4 1	Louisiana	5 6
Maryland	4.1	New York	6 4
†Wyoming	4.1	Vermont	6 4
Michigan	4.2	Arkansas	6.5
Washington	4.2	North Dakota	6.5
Virginia	4.3	Utah	7 7
†Montana	4 4	Nebraska	7.9
Texas	4.5	United States	4 7

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* Population Estimates Current Population Reports Jan 25 1954, Series P 25 No 89 Washington D C

† State with no medical school

In four other schools out-of-state students accounted for less than 5% of the entering class, in four schools, 5 to 10% of students were from out of state, in 34 schools, 10 to 50% of the students were from out of state, and in 22 schools 50 to 94% of students were from out of state Information as to the number of nonresident first year students at the University of Puerto Rico School of Medicine was not available

Of the 23 schools limiting out-of-state residents to less than 10% of the positions in the entering class all but one is a state or municipally supported institution Of the 22 schools admitting out-of-state residents to more than 50% of the positions in the entering class all but one is a privately supported institution Of all students, 49 9% in the entering class were admitted to state or municipally supported institutions, and 50 1% were admitted to privately supported institutions Of the freshmen enrolled in government supported schools, 394 or 10 6% were residents of states other than that in which the schools were located In the first year classes of the private schools 1,984 students or 53 2% of the total freshmen enrollment, were out-of-state residents

TABLE 14 —*Medical Schools Classified by Ownership 1953-1954*

Privately Owned

1 College of Medical Evangelists
2 Stanford University School of Medicine
3 University of Southern California School of Medicine
4 Yale University School of Medicine
5 Georgetown University School of Medicine
6 George Washington University School of Medicine
7 Howard University College of Medicine
8 Emory University School of Medicine
9 Chicago Medical School
10 Northwestern University Medical School
11 Stritch School of Medicine of Loyola University
12 University of Chicago the School of Medicine
13 Tulane University of Louisiana School of Medicine
14 Johns Hopkins University School of Medicine
15 Boston University School of Medicine
16 Harvard Medical School
17 Tufts College Medical School
18 St Louis University School of Medicine
19 Washington University School of Medicine
20 Creighton University School of Medicine
21 Dartmouth Medical School
22 Albany Medical College
23 Columbia University College of Physicians and Surgeons
24 Cornell University Medical College
25 New York Medical College Flower and Fifth Avenue Hospitals
26 New York University College of Medicine
27 University of Buffalo School of Medicine
28 University of Rochester School of Medicine and Dentistry
29 Duke University School of Medicine
30 Bowman Gray School of Medicine of Wake Forest College
31 Western Reserve University School of Medicine
32 Hahnemann Medical College and Hospital of Philadelphia
33 Jefferson Medical College of Philadelphia
34 Temple University School of Medicine
35 University of Pennsylvania School of Medicine
36 University of Pittsburgh School of Medicine
37 Woman s Medical College of Pennsylvania
38 Meharry Medical College
39 Vanderbilt University School of Medicine
40 Baylor University College of Medicine
41 Marquette University School of Medicine

State Owned

1 Medical College of Alabama
2 University of Arkansas School of Medicine
3 University of California School of Medicine
4 University of Colorado School of Medicine
5 Medical College of Georgia
6 University of Illinois College of Medicine
7 Indiana University School of Medicine
8 State University of Iowa College of Medicine
9 University of Kansas School of Medicine
10 Louisiana State University School of Medicine
11 University of Maryland School of Medicine and College of Physicians and Surgeons
12 University of Michigan Medical School
13 University of Minnesota Medical School
14 University of Mississippi School of Medicine
15 University of Missouri School of Medicine
16 University of Nebraska College of Medicine
17 State University of New York College of Medicine at New York City
18 State University of New York College of Medicine at Syracuse
19 University of North Carolina School of Medicine
20 University of North Dakota School of Medicine
21 Ohio State University College of Medicine
22 University of Oklahoma School of Medicine
23 University of Oregon Medical School
24 Medical College of South Carolina
25 University of South Dakota School of Medicine
26 University of Tennessee College of Medicine
27 Southwestern Medical School of The University of Texas
28 University of Texas School of Medicine
29 University of Utah School of Medicine
30 University of Vermont College of Medicine
31 Medical College of Virginia
32 University of Virginia Department of Medicine
33 University of Washington School of Medicine
34 West Virginia University School of Medicine
35 University of Wisconsin Medical School
36 University of Puerto Rico School of Medicine

Municipally Owned

1 University of Louisville School of Medicine
2 Wayne University College of Medicine
3 University of Cincinnati College of Medicine

Table 14 lists all approved United States medical schools according to type of ownership The University of Puerto Rico School of Medicine represents an addition to the list of state-owned schools since last year

TRANSFER OF STUDENTS FROM SCHOOLS OF BASIC MEDICAL SCIENCES TO MEDICAL SCHOOLS

All graduates of the five years between 1949 and 1953 of the six United States and one Canadian schools of basic medical sciences were successful in transferring with advanced standing to an approved four year medical school

TABLE 15 —*Transfer of Students from Schools of Basic Medical Science to Medical Schools, 1949-1953*

Medical School	No
Medical College of Alabama	14
University of Arkansas	1
College of Medical Evangelists	3
University of Southern California	4
Stanford University	
University of California	5
University of Colorado	26
Yale University	
Georgetown University	
George Washington University	4
Howard University	
Emory University	7
Medical College of Georgia	
Chicago Medical School	
Northwestern University	63
Stritch School of Medicine	4
University of Chicago, The School of Medicine	
University of Illinois	28
Indiana University	6
State University of Iowa	28
University of Kansas	30
University of Louisville	26
Louisiana State University	25
Tulane University	33
Johns Hopkins University	17
University of Maryland	6
Boston University	7
Harvard Medical School	83
Tufts College Medical School	1
University of Michigan	6
Wayne University	
University of Minnesota	2
St Louis University	11
Washington University	77
Creighton University	13
University of Nebraska	32
Albany Medical College	6
University of Buffalo	2
Columbia University	10
Cornell University	14
New York Medical College	
New York University	5
State University of New York, New York	
State University of New York, Syracuse	
University of Rochester	9
University of North Carolina	
Duke University	7
Bowman Gray School of Medicine	13
University of Cincinnati	8
Western Reserve University	9
Ohio State University	
University of Oklahoma	4
University of Oregon	1
Hahnemann Medical College	
Jefferson Medical College	13
Temple University	16
University of Pennsylvania	27
Woman's Medical College	2
University of Pittsburgh	28
Medical College of South Carolina	1
University of Tennessee	90
Meharry Medical College	1
Vanderbilt University	9
Southwestern Medical School	20
University of Texas	
Baylor University	18
University of Utah	1
University of Vermont	5
University of Virginia	8
Medical College of Virginia	109
University of Washington	7
University of Wisconsin	
Marquette University	4
University of Puerto Rico	
Total	1,018

Students completing the two year program in United States schools of basic medical sciences were accepted by 57 of the 74 approved four year schools in the United States and one of the approved Canadian schools Four schools in the United States accepted students from all 6 of the currently existing schools of basic medical sciences, and 10 others accepted students from at least 4 of them Of the 17 schools in the United States not accepting any such students during this period, 8 are privately supported and 9 are state or municipally supported

Table 15 indicates the number of such students accepted by each of the approved four year schools in the United States This study was prepared with the thought that it would be of value to both students of the schools of basic medical sciences and their faculty advisors

All students completing the program of the University of Saskatchewan school of basic medical sciences during this period were accepted by 7 of the 11 approved four year Canadian schools

PREPROFESSIONAL REQUIREMENTS AND ATTAINMENTS OF THE ENTERING CLASS

Preprofessional Requirements —In order to provide an opportunity for students to gain a broad educational background, the Council on Medical Education and Hospitals recommends four years of preprofessional college training Since January, 1953, the minimum requirement for admission to an approved medical school has been three years of college work with the provision that rarely and only under exceptional circumstances will an approved medical school be justified in admitting a superior student with only two years of college preparatory work That this provision needs careful interpretation is illustrated by the fact that out of a total of 40 students with only two years of college study admitted to the first year class in the academic year 1953-1954, all were admitted to two medical schools and one of these schools accepted 38 such applicants

In keeping with the desire to allow students preparing for the study of medicine the opportunity for a broad, balanced education with ample freedom to follow individual interests, the courses required for premedical study by this Council have been reduced to a minimum[10] The subcommittee on preprofessional education of the Survey of Medical Education strongly endorses this principle[2] They also urge that medical schools abandon the practice of listing "recommended" courses to further facilitate achievement of this aim

Stalnaker and Eindhoven have collected data on the courses required and courses recommended by the medical schools in this country[11] Required course material in all fields varies from 27 hours to 84, with a median of 42 hours More than two-thirds of the medical schools list additional "recommended" science courses A somewhat smaller number list "recommended" courses in the humanities and social sciences and less than one-third of all medical schools completely refrain from recommending courses

College Record —This represents the fourth consecutive year in which data have been reported on the scholastic records of students entering medical school As was true last year, medical schools were asked to report the average college grades of their students on the basis of a four point scale in which 4 0 represents the highest attainable grade A grade of 3 6 to 4 0 is approximately equivalent to "A," 2 6 to 3 5 to "B," and 1 6 to 2 5 to "C " Seventy-two of the 80 schools provided the data requested

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[10] Essentials of an Acceptable Medical School Council on Medical Education and Hospitals, American Medical Association Chicago December, 1951

[11] Stalnaker, J M, and Eindhoven, J Admission Requirements of American Medical Colleges, Association of American Medical Colleges, Chicago, 1954

Table 16 presents a comparison of the college records of the 1952-1953 first year class in medicine and the 1953-1954 first year class It is worth noting that even though the change has not been dramatic, there has been this year an increase in the number of students entering medical school with a better college record than was true last year This has occurred in spite of the decrease in the number of applicants from 16,763 to 14,678 during the same period as reported by Stalnaker [9]

Table 17 presents the number of students in the 1953-1954 entering class who had been awarded the baccalaureate degree prior to admission to medical school Approximately 70% of this entering class were in this category If the same relative number of students in this class receive such a degree during the course of their medical studies as did the class graduating from medical school in 1952-1953, then at the time of graduation in 1956-1957 almost 90% will possess both the baccalaureate degree and the medical degree

TABLE 17 —*Freshmen and Graduates with Baccalaureate Degrees in Medical Schools in the United States and Canada July 1 1953 to June 30, 1954*

	Freshmen			Graduates		
United States	No of Freshmen	No Holding Degrees	Percentage with Degrees	No of Graduates	No Holding Degrees	Percentage with Degrees
Medical College of Alabama	80	56	70 0	61	61	100 0
University of Arkansas	92	55	59.8	72	42	58.3
College of Medical Evangelists	95	94	98.9	92	91	98.8
University of Southern California	65	45	69.2	141	93	66 0
Stanford University	58	23	39 7	64	64	100 0
University of California	76	42	55.3	74	72	97.3
University of Colorado	82	58	70 7	81	74	91.2
Yale University	79	62	78.5	63	57	90.5
Georgetown University	120	119	99.2	107	106	99.8
George Washington University	100	74	74 0	78	66	84.6
Howard University	79	79	100.0	69	69	100.0
Emory University	72	50	69 4	70	68	97.1
Medical College of Georgia	79	62	78.5	73	70	95.9
Chicago Medical School	72	72	100 0	137	125	91.2
Northwestern University	131	82	62.6	136	116	85.3
Stritch School of Medicine	88	56	63.6	83	66	79.6
University of Chicago	72	43	59 7	69	43	62.3
University of Illinois	167	70	41.9	169	167	98.8
Indiana University	151	68	45 0	139	133	95.6
State University of Iowa	119	59	49 6	116	93	80.2
University of Kansas	111	74	66 7	105	105	100 0
University of Louisville	100	86	86 0	92	90	97.9
Louisiana State University	125	57	45.6	107	[illegible]	92.0
Tulane University	135	61	45.2	128	106	82.8
Johns Hopkins University	75	75	100 0	77	77	100.0
University of Maryland	104	65	6[illegible] 4	96	87	90 7
Boston University	72	71	98 6	66	63	93.9
Harvard Medical School	115	106	92.2	148	143	96 7
Tufts College Medical School	117	111	94.9	110	108	98 0
University of Michigan	204	126	61.8	155	148	96.1
Wayne University	75	40	53.3	65	56	86.2
University of Minnesota	127	51	40.2	133	133	100 0
University of Mississippi	57	26	45 6			
St Louis University	123	97	78.9	132	112	84.8
University of Missouri	44	31	70.5			
Washington University	86	63	73.3	96	93	96.9
Creighton University	70	35	50 0	70	48	68.6
University of Nebraska	86	51	59.3	92	61	66.3
Dartmouth Medical School	24	3	12.5			
Albany Medical College	59	58	98.3	53	51	96.2
University of Buffalo	71	49	69 0	70	53	75 7
Columbia University	120	116	96 7	111	109	98.2
Cornell University	84	80	95.2	83	83	100.0
New York Medical College	128	123	96.1	112	107	95.5
New York University	130	105	80.8	121	114	94.2
State University of New York at New York City	150	139	92 7	131	114	87.0
State University of New York at Syracuse	76	53	69 7	66	60	90.9
University of Rochester	71	60	84.5	69	64	92.8
University of North Carolina	60	36	60 0	48	47	97.9
Duke University	79	50	63.3	80	64	80 0
Bowman Gray School of Medicine	54	27	50.0	50	45	90 0
University of North Dakota	35	11	2[illegible].9			
University of Cincinnati	90	80	88.9	89	84	94 4
Western Reserve University	81	80	98.8	85	81	95 0
Ohio State University	150	139	92 7	136	135	99.3
University of Oklahoma	100	41	41 0	81	64	79.1
University of Oregon	75	34	45.3	56	56	100.0
Hahnemann Medical College	105	99	94.3	96	95	99.0
Jefferson Medical College	171	162	94 7	163	160	98.2
Temple University	131	116	88.5	132	125	[illegible]4.2
University of Pennsylvania	127	120	94.5	127	124	97.9
Woman s Medical College	51	50	98 0	43	43	100 0
University of Pitt burgh	100	91	91 0	98	90	91.8
Medical College of South Carolina	80	66	82.5	55	53	96 4
University of South Dakota	31	19	61.3			
University of Tennessee	219	92	42 0	159	[illegible]	47.8
Meharry Medical College	65	60	92.3	63	60	95.2
Vanderbilt University	53	24	45.3	54	54	100 0
Southwestern Medical School	100	71	71 0	[illegible]	[illegible]	77.5
University of Texas	161	70	43.5	132	115	87 1
Baylor University	93	38	40.9	86	65	75.5
University of Utah	54	24	44 4	45	45	100.0
University of Vermont	51	45	88.2	43	35	81 4
University of Virginia	76	70	92.1	70	67	95 7
Medical College of Virginia	84	71	84.5	109	96	88 0
University of Washington	75	41	54 7	65	[illegible]	[illegible]
West Virginia University	32	15	4[illegible]			
University of Wisconsin	87	33	37.9	[illegible]	79	100 0
Marquette University	101	33	32 7	[illegible]	[illegible]	[illegible]5
University of Puerto Rico	50	40	80 0	45	45	100 0
Totals	7 449	[illegible]	70.2	6 861	6 143	89.5
Canada						
University of Alberta				41	41	100 0
University of British Columbia				54	47	[illegible]0
University of Manitoba				[illegible]	14	24.1
Dalhousie University				53	21	[illegible]
Queen University					17	21.5
University of Western Ontario				41	31	[illegible]
University of Toronto				[illegible]	[illegible]	21 [illegible]
McGill University				[illegible]	[illegible]	[illegible]5
University of Montreal				[illegible]	[illegible]	[illegible]0
Laval University				1[illegible]4	1[illegible]4	100 0
University of Ottawa				47	[illegible]	[illegible]
Totals				[illegible]	[illegible]	[illegible]

TABLE 16 —*Comparison of College Record Freshman Class, 1952-1953 and 1953-1954*

College Grade Average	Percentage of 1953-1954 Freshman Class	Percentage of 1952 1953 Freshman Class
3.6-4 0 (A)	21 1	18 0
2.6-3.5 (B)	68.9	67.5
1.6-2.5 (C)	10 0	14.5

THE NEXT FRESHMAN CLASS

Figures currently available suggest that the forthcoming new first year medical school class will show a slight reduction over the record size of the 1953-1954 entering class It can be anticipated, however, that in a few years other new records will be established as new schools and contemplated expansion of existing schools are completed

As of June of this year, 98% of the anticipated class had already been selected There will apparently be no significant change in the number of veteran students enrolled, which strengthens the presumption made in another section of this report that the veteran population in the early years of medical school probably represent veterans of the Korean war while those from World War II have largely disappeared from the medical student group

GRADUATES

For the second consecutive year, the number of graduates of approved medical schools in the United States established a new record The 6,861 graduates of this year represent a 2 9% increase over last year As was true last year, part of the increase was due to discontinuation of the required internship year so that two schools, University of Southern California and Chicago Medical School, graduated two classes Even taking this into account, in both years there would have been a record number of graduates The addition of the graduates of the University of Puerto Rico and University of North Carolina accounts for a significant part of the increase for the current year Information regarding numbers of graduates over a period of 25 years can be found in table 7

Canadian medical schools reported 896 graduates, 71 more than last year A large part of this increase was due to the inclusion of graduates of the University of British Columbia

TABLE 18 —*Medical Schools Offering Preceptorship Programs, 1953-1954*

University of Arkansas	University of Buffalo
College of Medical Evangelists	Duke University
University of California	University of Oklahoma
Emory University	University of Oregon
Indiana University	Hahnemann Medical College
State University of Iowa	University of Pennsylvania
University of Kansas	University of South Dakota
University of Louisville	University of Texas
Boston University	University of Vermont
University of Nebraska	University of Washington
Albany Medical College	University of Wisconsin

It is estimated that there will be close to 7,000 graduates of United States schools and over 900 graduates of Canadian schools in 1954-1955

As shown in table 17, there was an increase again in the number and percentage of graduates in both United States and Canadian schools holding baccalaureate degrees Of the graduates of United States schools, 89 5% held such degrees, and 65 5% of the graduates of Canadian schools held such a degree

PRECEPTORSHIPS

Table 18 lists the medical schools in the United States that offered preceptorships during the 1953-1954 academic year The Medical School at Yale University and the Stritch School of Medicine both discontinued such programs during that year However, Stritch as well as Alabama, which also previously offered a preceptorship program, plan to reinstitute programs again in the coming year The University of California School of Medicine and Hahnemann Medical College instituted new programs

Of the programs offered during the year covered by this report, 13 were elective and 9 were required A total of 1,019 students participated in these programs One of the programs was offered in the last year of a basic medical science school, another in the third year, and the remaining 20 were presented either in the summer between the third and fourth year or during the fourth year

TABLE 19 —*Students in the Required Intern Year in the United States, 1931 to 1954*

Year	Number	Year	Number
1930-1931	1,025	1943-1944	461
1931-1932	1,067	1944 (second session)	447
1932-1933	1,106	1944-1945	452
1933-1934	1,183	1945-1946	488
1934-1935	1,233	1946-1947 *	582
1935-1936	1,213	1947-1948	447
1936-1937	1,255	1948-1949	458
1937-1938	1,132	1949-1950	454
1938-1939	1,162	1950-1951	501
1939-1940	1,152	1951-1952	379
1940-1941	1,058	1952-1953	407
1941-1942	767	1953-1954	208
1942-1943	639		

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* Includes additional classes

The programs varied in duration from two weeks to three months with a median of five and one-half weeks Only four of the programs in effect have been in existence more than 5 years and only two more than 10 years, one of which (Wisconsin) was instituted in 1925

REQUIRED INTERNSHIPS AND NATIONAL INTERNSHIP MATCHING PROGRAM

It is interesting to note that despite variations there has been over the past years a definite, and now almost completed, trend toward abandoning the internship as a requirement for graduation from medical school in the United States Table 19 illustrates this trend Two of the three schools represented by the 203 students who served this requirement in 1953-1954 have already abandoned the required internship Thus, it can be anticipated that figures for 1954-1955 will establish another record low

Table 20 indicates the schools in the United States and Canada that continue this requirement It should be noted that of the two United States schools listed, one (Duke) does not withhold the medical degree until the internship is completed but has an arrangement with its students whereby they agree to spend two years after graduation in a hospital or laboratory before entering practice For this reason, students from Duke University have never been included in the figures in table 19

The almost total disappearance of the requirement of the internship as a prerequisite to medical school graduation has not been due to the shifting of responsibility for this requirement from the medical schools to the state licensing boards, for only 26 states, the District of Columbia, Alaska, Canal Zone, Guam, Hawaii, and Puerto Rico include such a requirement in their licensing laws It would seem more likely that the abandonment of this has been brought about by the realization that graduates of U S medical schools have themselves over a period of many years maturely recognized the value and necessity of further formal training

TABLE 20 —*Medical Schools Requiring an Internship*

United States

Stanford University School of Medicine
Duke University School of Medicine *

Canada

University of Manitoba Faculty of Medicine
Dalhousie University Faculty of Medicine
University of Ottawa Faculty of Medicine
Laval University Faculty of Medicine
University of Montreal Faculty of Medicine

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* Degree not withheld until internship completed

Records of the graduates in 1952-1953 were examined, and it was learned that all but two of these 6,668 graduates had accepted internships or in a few instances positions as fellows or assistant residents Both graduates who did not take some form of graduate training were married women students, and neither of them entered practice Not a single graduate of that year entered practice directly from medical school

It has been observed that almost all of the misunderstandings and objections to the National Intern Matching Program have arisen as a result of lack of familiarity with the objectives and methods of the program To facilitate better understanding of this program on the part of individual physicians and hospital staff groups the following statement, presented by the director of operations of the National Intern Matching Program, is presented

> The National Intern Matching Program, Incorporated, operates the "matching program" for internship appointment now entering its fourth year of operation It offers an orderly method of intern placement consonant with American principles of individual freedom Some 10,700 internships at 820 hospitals (each approved for internship training by the American Medical Association) are offered each year to the 6,400 plus graduating

seniors who seek internships Some 4,500 internships will go unfilled, no matter what system is used. Approximately 1,500 of these positions are later filled by foreign trained graduates, second year interns, etc Competition among hospitals is, therefore, extremely keen Certain popular hospitals have a plethora of applicants while others do not attract a single applicant These popular internships are filled (146 hospitals were completely filled in 1954, 246 of the 1,032 separate intern training programs were filled) and this creates great student competition, in spite of the surplus of internships

The National Intern Matching Program is completely controlled and operated jointly by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, the Catholic Hospital Association and the American Protestant Hospital Association Two student representatives at large, with full voting rights, are members of the Board of Directors It is a non profit corporation

The core of the matching program is freedom of choice for students and hospitals, and the preservation of the bargaining rights of both This freedom is the cornerstone of the program Applications are initiated by student and hospital, and not by the matching program Students apply to hospitals which interest them for whatever reasons appeal to them Each student makes out, privately, a confidential preference list of internships, and each hospital confidentially ranks its student applicants The student s confidential preference list gives him an opportunity to escape pressures from hospitals and advisers The NIMP matches the choices as follows

Each student is matched with the hospital highest on his list that will accept him (i e, that cannot fill with other applicants the hospital prefers to him) If his first choice hospital does not want him, his chances at his second (or third or fourth) are in no way diminished Thus he goes only where he wants to go, and always to the internship *he* most desires which will accept him

Each hospital gets everyone of its applicants it desires (to the number it specifies) provided that the applicant prefers this hospital to any other one open to him If more applicants desire the hospital than the hospital has openings, the hospital s ranking list determines who the preferred men will be If a highly ranked man goes elsewhere, by his own choice, the hospital s chances for lower ranked men are in no way reduced The hospital gets only men it wants, and as many as it wants, *provided* it can attract enough applicants that prefer it to other hospitals

Thus, in full freedom of choice the plan works as a clearing house, not interfering with, but giving effect to the choices of both hospital and student It has removed, insofar as possible, the great pressures that caused recriminations once common to the internship placement scene The broken contracts, the pressuring and signing up of students long before the senior year for internship commitments, and other undesirable aspects have now largely disappeared An overwhelming majority of both students and hospitals felt that the initial matching program was successful Operational improvements in technics and more complete understanding have followed and the matching program" today, has the continued support of hospitals, deans and students

The matching program does *not* allocate, distribute, or otherwise control interns or internships It does *not* set quotas or approve hospitals for internship training It does *not* by its nature, favor any group of hospitals, or in any way advise students where to intern

The Student American Medical Association and all other student groups which have studied the matching program endorse it fully Every medical and hospital organization or committee which has studied the matching program and reviewed its operations have approved it These include the American Medical Association, the Student American Medical Association American Hospital Association Association of American Medical Colleges Catholic Hospital Association American Protestant Hospital Association and the National Student Internship Committee

THE COST OF ATTENDING MEDICAL SCHOOL

In February of 1954, Counts and Stalnaker [12] published an informative statement of the cost of medical education to the student including data as to the sources of student income and the income of their parents The data were obtained from 6,251 students in 26 selected medical schools It was found that the average medical student today spends approximately $9,200 during his four years of undergraduate medical education Furthermore, for the average single student most of the financing came from parents, while in the case of married students the chief source of this support was derived from the earnings of the wife

For purposes of this report, medical school administrators were requested to estimate the minimum and average financial outlay by their students during the academic year 1953-1954 on the basis of expenditures for tuition, special fees, equipment, books, and essential living costs Seventy-one schools submitted data indicating that the total annual average expenditure by the student was $2,380 This when multiplied by four gives a total cost of $9,520 for the entire undergraduate period, a figure closely approximating the average determined from the students by Counts and Stalnaker Minimum costs were reported to average approximately $1,690 per year, or $6,760 for the entire four years

TABLE 21 —*Comparison of Tuition Fees 1940-1941 with 1953-1954*

	1940-1941	1953-1954	Percentage of Increase
Total number of approved United States schools	76	80	5.3
Number of schools with added fee for nonresident students	28	33	17 9
Average fee for resident students	$391	$633	62
Average tuition fee for nonresident students	$445	$772	76
* Cost of living index (1935 to 1939 = 100%)	103	192	87

* Some additional comparisons involving national aggregates may be helpful. These were derived from publications of the United States Department of Commerce and the United States Department of Labor

Per capita disposable personal income increased from $633 in 1940-1941 to $1,566 in 1953 or a 147% increase Per capita personal consumption expenditures increased from $582 in 1940-1941 to $1 452 in 1953 or a 149% increase The number of weeks wages of production workers in manufacturing necessary to pay the average fee for resident students decreased from 18.2 weeks in 1941 to 9.3 weeks in 1952 or a decrease of 29 0% The number of weeks wages of production workers in manufacturing necessary to pay the average tuition fee for nonresident students decreased from 15 weeks in 1941 to 11.4 weeks in 1952 or a decrease of 24.5%

STUDENT FEES

The average tuition fee during 1953-1954 for students who were residents of the state in which the school they entered was located was $633 The average fee for nonresident students was $772 In computing this latter sum, tuition figures were included for schools that had no differential between resident and nonresident students

It was thought that it might be of value to present a comparison between tuition fees in 1953-1954 and 1940-1941, just prior to World War II This material is given in table 21 The average fee for nonresident students presented represents the average for all schools, not just those that have increased fees for nonresident students The consumer s price index was used for the cost of living index

Although there have been substantial increases in tuition fees, the increases have been kept significantly less than the increase in the cost of living There has been a percentage increase in the number of schools charging additional tuition fees for nonresident students and also an increase in the average nonresident fee over and above the increase in average resident tuition

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[12] Counts, S., and Stalnaker J M The Cost of Attending Medical School J M Educ 29 20-25 (Feb) 1954

Data relative to tuition fees for resident students during 1953-1954 and anticipated fees for the same group during 1954-1955 are presented in table 22 In this table, the medical schools of the United States and Canada have been grouped according to the fees charged The sums represent one-fourth of the total tuition and special fees charged for the four years of the medical course Fees in 1954-1955 will range from $99 to $1,284, with a median of $715 and an average of $645 The median represents no change from 1953-1954 and the average represents an increase of $12

SCHOLARSHIP AND LOAN FUNDS IN MEDICAL SCHOOLS

Seventy of the 80 medical schools in the United States reported a total of $1,029,263 27 in scholarship resources available to medical students from funds held by or directly controlled by the school or university during 1953-1954 The average scholarship fund available was $14,704, which represents a definite increase over the $12,014 average indicated by the 62 schools reporting such scholarship funds in 1952-1953 The largest amount reported by any institution was $143,052 and the smallest was $100 One other school reported scholarship funds over $100,000 Thirteen additional institutions indicated scholarship funds in excess of $25,000 for 1953-1954

TABLE 22 —*Range of Annual Fees in Medical and Basic Science Schools in the United States and Canada*

Fees	1953-1954 No of Schools		1954-1955 No of Schools	
	United States	Canada	United States	Canada
Less than $100	1		1	
$100 to 199	3		2	
200 to 299	4		3	
300 to 399	8	3	9	3
400 to 499	12	7	11	7
500 to 599	7	2	8	2
600 to 699	4		4	
700 to 799	7		6	
800 to 899	20		21	
900 to 999	7		12	
1,000 and over	1		3	
Totals	80	12	80	12

Seventy-three of the medical schools indicated total loan funds available for medical students at $2,127,850 40, with an estimated $894,604 50 loaned to their students during 1953-1954 Loan funds varied from a high of $130,617 to a low of $1,437 in different institutions, with an average of $29,148 64 for the group reporting the availability of such funds

As was indicated in the first résumé on scholarship and loan funds for medical students in the last annual report, there are additional sources of financial aid in the form of resident scholarships from certain states and special subsidies for student residents who agree to locate for practice in small towns or rural areas on completion of their undergraduate medical education and internship Where interstate cooperative arrangements have been consummated, as in the instance of the Southern Regional Education Board, students receive some assistance through the lower resident tuition rate of the school rather than the augmented out-of-state tuition charged in most state institutions A somewhat similar program is developing among the Western states and in New England, and consideration is also being given to the possibility of such a program by the states in the Midwest Such programs are directed primarily, however, toward medical school financing through support by the regional organization to institutions of the difference between tuition and total basic costs of medical education

Because of the many variables in available student scholarship and loan funds, there is currently no encyclopedic listing of such resources Students desiring such information should directly contact the medical school concerned in order to determine what forms of aid are available and the conditions under which they are granted

INTRAMURAL TEACHING RESPONSIBILITIES OF MEDICAL SCHOOLS FOR OTHER THAN UNDERGRADUATE MEDICAL STUDENTS

At the present time there is no single medical school in the United States in which some instruction is not given to students other than those enrolled in undergraduate medical courses In fact, the number of persons other than undergraduate medical students who receive part or all of their instruction from medical faculties is over twice as great as the total number of undergraduate medical students During 1953-1954 medical schools reported 59,430 students other than undergraduate medical students Table 23 has been modified from previously published tables so as to include physicians and graduate students working toward advanced degrees and to eliminate part-time special students working toward M D degrees (included in medical school enrollment data, table 1) It is an analysis of the total number and distribution of these students in each of the medical schools Table 24 vividly illustrates the rapid increase in these additional intramural teaching responsibilities of medical faculties from 17,906 in 1947-1948 to 59,430 in 1953-1954 Canadian medical schools report a gross total of 5,281 students other than undergraduate medical students receiving instruction in their schools in 1953-1954

Comparison with last year's analysis indicates that there has been an increase in every category of student except for student technicians receiving instruction from medical school faculties and nonphysician graduate students working for degrees in basic medical sciences Actual numerical increases in students in the various categories were dental 525, pharmacy 60, nursing 1,594, nonmedical (arts and science) 2,053, physicians working as fellows 30, physicians taking continuation courses 904, interns whose instruction is a primary medical school responsibility 62, residents whose instruction is a primary medical school responsibility 893, and physicians working toward advanced degrees 201 Student technicians decreased 994, and graduate students in the basic medical sciences were 42 fewer than reported the previous year

Two areas of concern are present in any situation where a medical school faculty is charged with responsibility for teaching students other than undergraduate medical students One of these lies in the area of interpretation of the actual cost of undergraduate medical education, and the second major concern is associated

TABLE 23 —*Intramural Teaching Responsibilities for Other Than Undergraduate Medical Students, 1953-1954*

UNITED STATES

School	Dental Students	Pharmacy Students	Nursing Students	Student Technicians	Arts and Science Students	Physicians in Continuation Courses	Physicians Taking Basic Science Courses for Specialty Boards	Physicians with Fellowship Appointments	Interns	Residents	Physicians Seeking Advanced Degrees	Other Graduate Students in Basic Medical Sciences	Totals	M A Degrees Granted	Ph D Degrees Granted
Medical College of Alabama	98		123	46			7	11	14	70		75	394	5	
University of Arkansas				19		147			12	85		9	272	8	1
College of Medical Evangelists	42		201	49		8	6	4	18	42			370		
Stanford University			120	12		111		26	85	67	1	1	423	1	
University of California	201	86	214	49		916			57	161		24	1 708	10	14
University of Southern California						379	60	4	135	135		45	758	1	10
University of Colorado			190		99	1,232	15	3	47	148	211	82	2,027	24	7
Yale University			429		13	119		32	45	69		108	815	25	17
George Washington University		109		7	370	165		20	22	25		110	841	9	8
Georgetown University	191		127	1				10	8	70	13	28	435	18	1
Howard University	99	68	40	14	36			2					259		
Emory University	234		40	7		167		19	34	133		10	644	1	2
Medical College of Georgia			72	2	4				24	47		1	150	1	
Chicago Medical School								7					7		
Northwestern University			732	29	3	11	12				26	9	822	15	17
Stritch School of Medicine											2	57	59	3	9
University of Chicago								21	42	118	5	115	294	8	12
University of Illinois	216	176			33	64	13		24	116	26	67	735	26	11
Indiana University	126		535	72	160	383	18	2	15	123		9	1 443		2
State University of Iowa	110	82	131	82	482	4	25	4	14	125	2	85	1,149	17	13
University of Kansas		20	173	49	565	1 726		2	26	85	5	10	2,664	6	5
University of Louisville	132		95	11	2	330		6	22	77	1	15	691	3	
Louisiana State University			53			43	8	1		81		8	194		2
Tulane University			155	2	13	247	19	56	86	85	19	30	715		4
Johns Hopkins University			248		12	17		59				5	341		1
University of Maryland		61	49	8		94	82	16	45	85		5	445	3	2
Boston University			72	81	24			3		7		51	188	1	8
Harvard Medical School	28					388	62	319				47	844	13	7
Tufts College Medical School	270					123		58				17	468	1	5
University of Michigan	364	31	415	101	566	617	24		55	250	21	118	2,472	37	12
Wayne University				17		200			66	125	75	32	515	5	3
University of Minnesota	276	102	181		1 034	1,392			30	125	1 060	140	4,259	72	14
University of Mississippi		29	8								1	1	39		
St Louis University	159		228	147		5			12	83	7	32	673	4	6
University of Missouri			45		533	4						13	595	8	4
Washington University				82	27		10	44	57	131			351	2	3
Creighton University	92		99		6				11	19	19	12	258	10	
University of Nebraska	26		119	39		124			13	39		9	370	1	
Dartmouth Medical School			135	14		1			16	53			222		
Albany Medical College			213		1	471			40	49		10	814		
University of Buffalo	122	52	125		225	217		2				8	751	2	1
Columbia University	75		337		102	551	32	21			2		1 120		
Cornell University			320			21	22	35				21	419	1	4
New York Medical College			188			91		1	1	23	6	1	311	8	
New York University			442		146			60	81	373		31	1 133	8	3
State University of New York New York City						16	17		98	108	4		243		
State University of New York Syracuse			212			400			24	70		13	719		1
University of Rochester			269	31					52	76		96	524	12	19
Duke University			166	43		10	10	83	56	104			472		
University of North Carolina	127	141	95	18	40	424		1	18	55		51	970	2	2
Bowman Gray School of Medicine			151	11					6	58		6	264	2	
University of North Dakota			129	23	27							10	191	8	
Ohio State University	575	24	376	223	1,160				30	117		102	2,627	12	2
University of Cincinnati			124	3	2	521		31	52	122	35	9	899		3
Western Reserve University	179		198	14	7	84	50	39				23	604	1	4
University of Oklahoma			220	11		508	75	2	29	45		35	925	3	1
University of Oregon			430		2	371			18	74		12	907	8	1
Hahnemann Medical College			117	23				14	10	46		5	220	3	
Jefferson Medical College							45	12	20	57		25	162	3	5
Temple University			266	22		42		8	18	99	67	2	530	12	
University of Pennsylvania	176		45		44			155	26	159		73	678	6	9
University of Pittsburgh			729			125	140		8	135		19	1,225		
Woman s Medical College of Pennsylvania			50					6	1	11			68		
Medical College of South Carolina		55	155	10	12	232	6	14	14	31		13	674	6	1
University of South Dakota					150						2	7	159	1	
Meharry Medical College	26		34	17		1			12	21		3	114		
University of Tennessee	203	174	200	23		121		29			20	43	818	7	6
Vanderbilt University						38			24	64		14	140		
Baylor University						3	2	2	67	137	4	20	234		
Southwestern Medical College						500		21	57	1 [illegible]		3	59[illegible]		
University of Texas			346	30	2	74		10	25	117		23	627	4	3
University of Utah			85	10	701	410		15	2[illegible]	84	5	[illegible]	1,315	[illegible]	
University of Vermont			43	13	21				20	21	2	6	125	3	
Medical College of Virginia	206	218	27[illegible]	[illegible]	59	400	13	5	41	9[illegible]		12	1,274	2	1
University of Virginia			225	8				16	2[illegible]	70	2	3	3[illegible]2	2	
University of Washington	144	65	175	15	2,910	492	11	9	23	67	8	[illegible]	4 0[illegible]	6	11
West Virginia University		45		24	12							1	82	1	
Marquette University	227					198					9	16	450	3	
University of Wisconsin		90	29[illegible]	417	1 013	184	6	5	10	[illegible]		74	2,1[illegible]	9	6
University of Puerto Rico			13	15	30				12	22				20	
Totals	4 694	1 727	11 673	1,964	10 6[illegible]4	15,215	831	1,270	1,[illegible]	5 480	1 620	2,213	[illegible] 40[illegible]	47[illegible]	2[illegible]2

CANADA

School	Dental Students	Pharmacy Students	Nursing Students	Student Technicians	Arts and Science Students	Physicians in Continuation Courses	Physicians Taking Basic Science Courses for Specialty Boards	Physicians with Fellowship Appointments	Interns	Residents	Physicians Seeking Advanced Degrees	Other Graduate Students in Basic Medical Sciences	Totals	M A Degrees Granted	Ph D Degrees Granted
University of Alberta						18					1	9	1	4	
University of British Columbia		46	182	26	[illegible]	112	14	6	47	[illegible]	19	[illegible]	[illegible]	2	
University of Manitoba			250			60			61				471	1	
Dalhousie University	24	14	22		85	433			54		10	[illegible]	[illegible]	2	
Queen s University			1[illegible]0		109						[illegible]	3	[illegible]		2
University of Ottawa			13		2	[illegible]			45		9	[illegible]		1	
University of Toronto	340	92	15		[illegible]	[illegible]	71	57			4[illegible]	42	1 [illegible]	3	4
University of Western Ontario			87						20	1		[illegible]	1	[illegible]	[illegible]
Laval University				91		8					2	3	1 [illegible]	1	4
McGill University	[illegible]										1[illegible]		222	14	4
University of Montreal	60	270		23	10[illegible]		11		9[illegible]		[illegible]	17	[illegible]	1	[illegible]
University of Saskatchewan		55	17[illegible]		1[illegible]							4	4[illegible]	2	[illegible]
Total	4[illegible]0	4[illegible]	1 04[illegible]	140	1,223	[illegible]	[illegible]	63	[illegible]	[illegible]	[illegible]	1[illegible]	[illegible] 1	[illegible]	[illegible]

with the potentiality of overburdening faculty personnel and diluting teaching and research activities to the point where either the undergraduate medical student, other students, or both groups may have less effective opportunities than would otherwise be the case Reasonably careful departmental analysis and institutional bookkeeping should make it possible to differentiate actual cost factors so that the true value of medical faculty services to other than undergraduate medical students may be delineated, and the actual cost of medical education determined in any institution Too frequently when a medical school renders service functions to large numbers of students in other areas either no adjustment or a nominal financial adjustment is made, ostensibly to pay for such services Frequently such reimbursements fall far short of the actual cost of the services rendered and leave the medical school underwriting the difference with this additional load interpreted by the uninformed as part of the cost of medical education This problem appears to fall in the area of budget and accounting practices of medical schools and universities The true cost of educating undergraduate medical students in a complex university setting or wherever others are also taught by the school can only be determined by utilizing effective budget and accounting methods

The question as to whether teaching responsibilities for other than undergraduate medical students may unduly dilute either teaching or research, or both, is a matter of local institutional policy If a medical school administration is fully aware of the implication of additional teaching services from the standpoint of budget, personnel and facilities and such needs are satisfied, there is no logical reason why either teaching or research in medicine should be diluted in any sense In fact, with adequate budgets, personnel and facilities, departments of basic medical science carrying such responsibilities may possess even greater potential in both teaching and research than would be the case if their activities were restricted solely to undergraduate medical students and to graduate students in their specific fields

A glance at table 24, which summarizes the intramural teaching responsibilities of medical schools for other than undergraduate medical students since 1947-1948, highlights a point that is frequently overlooked by those who have discussed and written of this development With the exception of the 44,080 nonmedical (arts and sciences) students who received some instruction in medical schools during this period, all of the remaining 254,458 persons were students in some phase of graduate or postgraduate medical education or in some field such as dentistry, pharmacy, nursing, or technology There can be little doubt in the mind of anyone giving serious thought to this matter but that graduate and postgraduate education fall within the logical area of responsibility of medical schools if they are adequately covered as far as budget, personnel, and facilities are concerned Physicians enrolled in continuation courses, in basic medical science courses preparing for specialty boards, fellows, interns, residents, or persons working for advanced degrees in the basic medical sciences account for 182,468 registrations out of the total during this period

Where basic medical science and clinical instruction is needed in such fields as dentistry, pharmacy, nursing, and technology, 73,508 persons have received part of their instruction from the faculties of medical schools during the past seven years There can be no question of the importance of sound indoctrination in the basic medical sciences required in each of these fields Since these areas of activity are so inextricably interwoven with the over-all field of medical care, it does not seem unreasonable that medical schools should engage in such instructional responsibilities, provided that wherever they are conducted provision is made for adequate budgets, personnel, and facilities, as well as budgeting and accounting practices that accurately delineate the cost factor in each area of activity

TABLE 24—*Intramural Teaching Responsibilities for Other Than Undergraduate Medical Students, 1947-1954*

Year	Dental Students	Pharmacy Students	Nursing Students	Student Technicians	*Arts and Science Students*	Physicians in Continuation Courses	Physicians Taking Basic Science Courses for Specialty Boards	Physicians with Fellowship Appointments	Interns	Residents	Physicians Seeking Advanced Degrees	Other Graduate Students in Basic Medical Sciences	Totals	M.A Degrees Granted	Ph D Degrees Granted
1947-1948	*	*	*	*	478	13 187	2,338	*	*	*	813	1,090	17,906	*	*
1948-1949	*	*	*	*	2 039	16 695	1,697	*	*	*	1,133	1,765	22 320	*	*
1949-1950	*	*	*	*	2 720	17 930	1,087	1 135	1 960	4,345	1,125	2 094	32 396	*	*
1950-1951	3,851	2,497	9 195	1,402	9 838	17 654	1,152	1,238	1,786	4 259	1 561	2,720	57 156	*	*
1951-1952	4 626	2,042	9 629	1 312	9 090	15 829	978	1 204	1 576	4 211	1,905	2 310	55 312	*	*
1952-1953	4,169	1,667	10 089	2 958	8 631	14,401	706	1 240	1,898	4 546	1 419	2,285	54,009	502	258
1953-1954	4,694	1,727	11 683	1 961	10 684	15 316	831	1,270	1,960	5 439	1,620	2,243	59,430	476	282
Total	17 313	7,933	40,596	7 636	44 080	110,011	8,789	6 087	9,180	22 800	9 576	14,507	298,538	978	540

* Figures not available

CURRENT STATUS OF MEDICAL EDUCATION AND NATIONAL DEFENSE

Medical Education for National Defense—The Joint Committee on Medical Education in Time of National Emergency, representing the Council on Medical Education and Hospitals of the A M A and the Association of American Medical Colleges, has continued to collaborate closely with the Department of Defense, the armed forces, the Selective Service System, the Public Health Service, the Civil Defense Administration, and other governmental agencies in dealing with problems created for medical education by the continuing defense needs of the nation Such coordination of effort continues to be of material assistance in the development of programs and policies designed to deal with these problems

A program for medical education for national defense (MEND) has been a successful experiment in the five institutions (Buffalo, California, Cornell, Illinois, and Vanderbilt) in which it was instituted two years ago At the outset it was agreed[13] that 1 Each of the schools in the pilot group should be free to work out its own program in light of the circumstances prevailing in that institution 2 The individual programs should be developed through the faculties of the respective institutions 3 The programs should be designed to stimulate the students and to create appropriate attitudes as well as to teach appropriate material 4 Emphasis should be placed on professional topics 5 The programs should be evaluated as critically as possible

At the conclusion of the first year, the MEND program committee felt that 1 There appeared to be a well-defined and recognized need for modification of medical curricula to make medical graduates better able to cope with medical problems encountered in disaster and war 2 The underlying philosophy of the MEND pilot programs is consistent with sound concepts of medical education 3 The acceptance by faculties, student bodies, representatives of the armed forces, and the Public Health Service of the MEND program had been favorable Conduct of the program was made possible through federal grants of approximately $15,000 annually to each of the participating institutions to support the program coordinator, defray travel and other expense

The A M A has endorsed the MEND program as it has been operated in the five pilot schools and has adopted the recommendation of the Council on Medical Education and Hospitals that it be made available to all medical schools on a voluntary basis Similar endorsement of the program has been given by the Association of American Medical Colleges on the recommendation of their Committee on National Emergency Planning

Selective Service System and Deferment Eligibility — With the exception of minor changes, Selective Service System regulations remain essentially unchanged The responsibility for the primary classification of registrants rests with the Selective Service local boards If a person or his employer (college, medical school, or hospital) has requested his deferment and he has been classified as available for military service, then the person or his employer may, within 10 days of the mailing of the classification, file an appeal If the State Appeal Board should sustain the classification, the registrant or his employer may, if there is a dissenting vote in the appeal board, file a written request with the local board to have the decision appealed to the National Selective Service Appeal Board If there is no dissenting vote, the state or national director of Selective Service may appeal the case to the President

The "college student certificate," SSS form 109, has been prescribed for the use of institutions of higher learning including those of medicine, in furnishing the local boards information regarding registrants who are enrolled as students in those institutions These forms should be submitted to the local boards by the educational institution on request of the registrant. However, the mere filing of such a form does not constitute a request for occupational deferment since, in order to establish the right of appeal as an interested party, a written request from the college or employer for occupational deferment must accompany the form The registrant has the right of appeal if exercised in the prescribed 10 days He can make his appeal informally in writing

Eligibility for Consideration for Deferment The law states that the President may provide for the deferment of any person whose deferment is equitable and in the national interest. He is also informed that it is the sense of the Congress that provision should be made for the annual deferment from training and service of premedical, predental, and allied preprofessional students in numbers equal to those at present in attendance at colleges and universities This is provided in the general student deferment program The President is also directed to establish a national advisory committee to advise the Selective Service System and aid state and local advisory boards in selecting the needed medical, dental, and allied personnel

The conditions under which students pursuing programs of higher education may be considered for deferment are specified in sections 1622 15 and 1622 25 of the Selective Service Regulations Within the specified requirements, students of the healing arts are to be considered for deferment in the same manner as students pursuing other undergraduate or graduate courses at colleges, universities, etc

Any student not previously deferred who is pursuing a full-time course of study is entitled to a single period of statutory deferment, class 1-S, until the end of the academic year Such deferment does not preclude the possibility of later deferment in class 2-S Students whose activity in study, research, medical, or other endeavors is found necessary to maintenance of the national health, safety, or interest may be deferred in class 2-S until completion of their training, provided they maintain satisfactory scholastic records A student who is deferred for study extends his liability for military training and service up to his 35th birthday instead of his 26th, as prescribed for registrants who have never enjoyed a deferment.

In selecting a student for deferment in class 2-S, the Selective Service local boards may, at their discretion, be guided either by the score made by the student on the Selective Service College Qualification Test, or by his record of academic performance

The College Qualification Test is given for the Selective Service System by the Educational Testing Service of Princeton, N J At present, in order to be eligible for deferment on the basis of this test, an undergraduate student must make a score of 70 or more SSS form 108 has been prescribed for furnishing to the local board the score made on the test. This score is confidential and may be divulged by the local board only to the registrant or one holding his written consent

To qualify for deferment on the basis of academic performance the nonprofessional student must have maintained the following standing among the male members of his class freshman year upper one-half, sophomore year, upper two-thirds, junior year upper three-fourths

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[13] Olson S W Medical Education for National Defense J M Educ 29 15 22 (Jan) 1954

A student accepted for admission to medical school after July 1, 1951, for the class next commencing may be deferred provided that during his last full-time year at a college or university he was ranked among the upper one-half of the male members of his class or had a score of 70 or more on the Selective Service Qualification Test

A student accepted for admission by a graduate school after July 1, 1951, as a full-time student for the class next commencing may be deferred provided in his last full time academic year in a college or university he achieved a scholarship standing among the upper one-half of the male members of his class or scored 75 or more on the qualification test, and provided the graduate school certifies that he is meeting the degree requirements

Decisions concerning deferment of American students enrolled in foreign universities, including medical students, are the responsibility of the local boards The local board may accept or reject any claims or evidence presented for deferment

Status of Interns and Residents The Selective Service System has always recommended the deferment of graduates of medicine to complete one year of internship training Recently, and in order to prevent calling up men of priority 3 who are in the higher age brackets, Selective Service has stated that men to be given favorable consideration for deferment to complete a residency or more than one year of internship, should be absolutely sential to the operation or maintenance of the hospitals e they are employed Selective Service is of the inion that there is a sufficient number of priority 4 young men to fill the needs of hospitals for residents

The National Advisory Committee to the Selective Service System has indicated that all physicians in priority 1 and priority 2 and those in priority 3 born after Aug 30, 1922, will be needed by the armed forces and has advised that they apply for commissions about the time of completion of their internships A few persons in these categories may be recommended for deferment by the Selective Service local boards for teaching, research or public health, or because they are rendering essential service in isolated communities and cannot be replaced

In addition, the only persons in this group who can justifiably be recommended for deferment are those who are accepted for training in the scarcity specialties and whose services are required to meet the essential needs of medical and dental schools or hospital services The specialties in which critical shortages exist are anesthesiology, physical medicine and rehabilitation, psychiatry, radiology, neurology, pathology, public health, orthopedic surgery, oral surgery, and the basic medical sciences Those few persons in these groups for whom deferment is necessary may be deferred in class 2-A by the Selective Service local boards The recommendation of the advisory groups in all such cases is desirable

Status of Faculty Members Since the majority of the faculty members of medical schools are under 50 years of age, they are required to register with the Selective Service System as indicated under Public Law 779 No policy has been announced by the Selective Service System on the granting of deferment to faculty members However, the National Advisory Committee has recommended that, as a general policy, essential members of medical, dental, and veterinary medical faculties be held in their teaching positions until such time as replacements are found This recommendation applies especially to persons in the basic science departments and includes persons in priorities 1 and 2 This policy is not a blanket recommendation for deferment from military service for all teachers Part-time teachers, who devote only a small portion of their time to teaching, and certain of the younger full-time teachers in priorities 1 and 2 will be expected to enter the military services

Status of the "Doctor-Draft" Law of 1953 Public Law 84, 83rd Congress, approved by the President, June 29, 1953, amended the Universal Military Training and Service Act It, and the previous amendment, Public Law 779, 81st Congress, are known as the "Doctor-Draft" law

The effective date of the whole Universal Military Training and Service Act, as now amended, is extended to July 1, 1955 No change was made in the age limit prescribed in the previous amendments, which required that all physicians, dentists, and allied specialists, under the age of 50, must register with their Selective Service local boards, when required to do so by proclamation of the President These special registrants remain liable for induction up to the age of 51 Therefore, all new medical graduates under the age of 50 must register with their Selective Service local boards as physicians, regardless of any previous registration, within five days of the receipt of the degree of Doctor of Medicine, provided they do not hold a commission in an armed forces reserve When the degree is not granted until the completion of an internship, this special registration is accordingly deferred

As under previous provisions of the act, registrants will be arranged in four priorities signifying the order of induction However, the criteria for such an arrangement under these priorities have been modified The major changes enacted by the new amendments are those which provide for greater recognition of prior military service A registrant will now receive credit for all service performed either as an officer, or as an enlisted man, since Sept 16, 1940, regardless of whether it was before or after participation in an AST or V-12 program, or deferment by the Selective Service System for professional education prior to March 31, 1947 Also, recognition is given for military service performed in the armed services of a country allied with the United States prior to Sept 2, 1945, while so allied

Whereas, formerly physicians who were educated in part, or in whole, at government expense, or were deferred by the Selective Service System while completing their professional education, needed 21 months of service to qualify for assignment in priority 4, they now need only 17 months As a result of this change, a number of physicians formerly in priorities 1 and 2 have been reassigned in priority 4 The periods of service for men called to active duty or inducted under the new law were also revised Those with 9 months or less of service must serve 24 months Those with 9 to 12 months will serve 21 months Those with 12 to 15 months service will serve 18 months, and those with 15 to 21 months service will serve 15 months Those physicians in priority 4 who have had 21 months or more of service since Sept 16, 1940, are no longer liable to induction or recall, except in time of war or national emergency declared by Congress

"Active service" and "active duty" are defined as full-time duty since Sept 16, 1940, in the service of the United States Army, Navy, Marine Corps, Coast Guard or Public Health Service, including reserve components, time spent during World War II, by conscientious objectors, in work of national importance, service performed before Sept 2, 1945, in the armed forces of countries that were allies of the United States during World War II and service performed as a physician or dentist for the Panama Canal Health Department between Sept 16, 1940, and Sept 2, 1945

Specifically excluded from consideration as "active service" is time spent in V-12 or AST programs, in military internships, residencies or senior student programs, time spent in military service for the sole purpose of undergoing physical examination, and training entered into after June 29, 1953 The law continues to permit deferment of those persons whose activities are essential to the national health, safety, or interest

It is the duty of the National Advisory Committee and the voluntary state and local committees of the Selective Service System to make recommendations to the Selective Service System concerning the essentiality or availability of special registrants who are being classified by their local boards This duty includes recommendations concerning residents, faculty members, and those engaged in essential laboratory and clinical research

The latest amendment made to the basic "Doctor-Draft" act was Public Law 403, approved June 18, 1954 This amendment makes it possible for the armed services to retain on duty, but in enlisted status, persons serving under the "Doctor-Draft" act whose loyalty is questioned, or for security reasons This amendment, therefore removed the mandatory requirement that physicians and dentists be given commissions

Status of Medical Military Scholarships—During recent years suggestions have been made in regard to the possible development of military medical scholarships with the objective of training career personnel Initial proposals have differed from some earlier suggestions in that the plans are not primarily to provide aid to needy students enrolled in all schools but represent a means of subsidization of a number of students in return for a pledge to serve after graduation in military establishments It is a business proposition between the student and the armed services The A M A has recommended that the establishment of such scholarships be endorsed providing the following safeguards are imposed (1) that the student be not approached until he has fully matriculated in the medical school, (2) that the student not expect nor receive special consideration so far as meeting the required standards of scholarship, behavior, and ethics are concerned and that failure in these areas shall automatically terminate the scholarship arrangement with the student, and (3) that the total number of students on such scholarships in any year's class in all of the schools and the number in a class in a single school not exceed 5% It is believed that any act creating such scholarships should have a reasonable "escape" clause satisfactory to the student and to the military authorities if circumstances warrant. To the date of publication no concrete proposal has been presented to Congress for establishment of such scholarships

Foreign Medical Schools and Students

FOREIGN STUDENTS IN MEDICAL SCHOOLS IN THE UNITED STATES

Much attention has been given of late to graduates of foreign medical schools seeking licensure to practice in this country and also to American citizens studying medicine in foreign schools Little note has been taken of the fact that the educational facilities in the United States are contributing significantly to the medical education of citizens of foreign countries

In 1953-1954 there was a total of 348 foreign citizens enrolled as students in 53 medical schools in the United States These were fairly evenly distributed with 101 in the first year class, 104 in the second, 78 in the third, and 65 in the fourth year class The highest enrollment in any of the schools was 34, and the average for schools having foreign students in attendance was 6 6 Fourteen schools had foreign students in all four classes and three schools had foreign students in only one class

During the same period, according to data reported by the Health Resources Advisory Committee, there were 5,589 noncitizens serving as interns, residents, or house officers in approved hospitals in this country It is unfortunate that exact information is not available as to how many of both of these groups are here on student visas with the obligation of returning to the country of origin on the completion of their study, for this would more accurately reflect the contribution of our educational system to foreign medicine than do total numbers

AMERICAN STUDENTS IN FOREIGN MEDICAL SCHOOLS

In the reports on medical education for the two preceding years, statistics were given on the number of citizens of this country who were studying medicine abroad A serious effort was made to collect such information again so that it could be included in this report

Unfortunately, the returns to date of the inquiries sent to foreign medical schools and other informed agencies are not sufficient to provide a reliable over-all view The data on hand do not indicate any major change from last year, but because they are so incomplete, valid observations could not be drawn from them Every effort shall be made to obtain a broad base of information for the next annual report

Students who plan to study medicine abroad are also cautioned to determine whether or not the credentials that they may obtain will be recognized in this country It is apparent that many of these students have not fully informed themselves concerning the educational standards of foreign schools While there are many such schools whose excellence is rather widely recognized in the United States, there are others whose credentials may not be accepted by the licensing authorities Students who are planning to study medicine abroad are therefore urged to communicate directly with the licensing boards of states where they hope to practice and to determine in advance of enrollment whether or not the credentials that they may receive will be acceptable

The Council has prepared a compendium of information on foreign medical education and the status of foreign medical credentials in the United States Reprints of this publication will be furnished on request, without charge

FOREIGN MEDICAL SCHOOLS

In February, 1950, the Council on Medical Education and Hospitals of the American Medical Association and the Executive Council of the Association of American Medical Colleges first published a list of foreign medical schools whose graduates they recommend for consideration on the same basis as graduates of approved medical schools in the United States This list is intended as a guide for institutions and organizations in this country who deal with foreign medical graduates and also as an aid to American students who plan to study medicine abroad

No foreign medical school can be included in the list solely on the basis of information furnished to the two councils by the school itself, by its graduates, or by any foreign government or agency The data upon which evaluation of foreign schools are based are obtained largely from recognized American medical educators known to both councils who, while traveling abroad, are able to visit foreign medical schools The councils do not maintain a staff to carry out such visits, nor can they accept from foreign schools that desire inclusion in the list offers to subsidize inspections by representatives of the councils In evaluating information about

TABLE 25—*Foreign Medical Schools*

List Prepared by the Council on Medical Education and Hospitals of the American Medical Association and the Executive Council of the Association of American Medical Colleges

On the basis of information presently available, the Council on Medical Education and Hospitals of the American Medical Association and the Executive Council of the Association of American Medical Colleges are of the opinion that medical institutions and medical organizations in the United States would be justified in considering current and past graduates of the following foreign medical schools on the same basis that they consider graduates of approved medical schools in the United States

Belgium

Free University of Brussels Faculty of Medicine
(Universite Libre de Bruxelles Faculte de Medecine)
Catholic University of Louvain Faculty of Medicine
(Universite Catholique de Louvain Faculte de Medecine, or
Katholieke Universiteit te Leuven)
University of Ghent Faculty of Medicine
(Universiteit te Gent Faculteit der Geneeskunde or
Universite de Gand Faculte de Medecine)
University of Liege Faculty of Medicine
(Universite de Liege Faculte de Medecine)

Brazil

University of São Paulo Faculty of Medicine
(Universidade de São Paulo Faculdade de Medicina)

China

Peiping Union Medical College

This recommendation applies to all those graduates who were granted the degree of Doctor of Medicine from the date when the first degrees were conferred in 1924 until and including the class of 1943 The education of students in the last class that of 1943 was interrupted by World War II, therefore some students finally completed their studies as late as 1949 However their diplomas were issued as of the class of 1943 Following the Communist conquest of China the name of this school was changed to the China Union Medical College The recommendation does not apply to this school

Denmark

University of Copenhagen Faculty of Medicine
(Kobenhavns Universitet Laegevidenskabelige Fakultet)

Finland

University of Helsinki Faculty of Medicine
(Helsingfors Universitet Medicinska Fakulteten)
Medical Faculty Turku University
(Turun Yliopiston Laaketieteellinen Tiedekunta)

Lebanon

American University of Beirut School of Medicine

Netherlands

University of Amsterdam Faculty of Medicine
(Universiteit van Amsterdam Geneeskunde Faculteit)
State University of Groningen Faculty of Medecine
(Rijks Universiteit te Groningen Geneeskunde Faculteit)
State University of Leiden Faculty of Medicine
(Rijks Universiteit te Leiden Faculteit der Geneeskunde)
State University of Utrecht Faculty of Medicine
(Rijks Universiteit te Utrecht Faculteit der Geneeskunde)

Norway

University of Oslo Faculty of Medicine
(Kongelige Frederiks Universitet Medisinske Fakultet)

Sweden

Royal Charles University Medical Faculty Lund
(Kungl Karolinska Universitetet Medicinska Fakulteten)
Charles Medico Surgical Institute Stockholm
(Karolinska Mediko Kirurgiska Institutet)
Royal University of Uppsala Medical Faculty
(Kungl Universitetet i Uppsala Medicinska Fakulteten)

Switzerland

University of Basel Faculty of Medicine
(Universität Basel Medizinische Fakultät)
University of Bern Faculty of Medicine
(Universität Bern Medizinische Fakultät)
University of Geneva Faculty of Medicine
(Université de Genève Faculté de Médecine)
University of Lausanne Faculty of Medicine
(Université de Lausanne Faculté de Mèdecine)
University of Zurich Faculty of Medicine
(Universität Zurich Medizinische Fakultat)

The recommendation with respect to the following medical schools in Switzerland applies only to those graduates of Swiss medical schools who hold the Swiss Federal Diploma issued by the Federal Department of the Interior (Eidgendoisssisches Department Des Innern Département Féderal de l Interieur) and obtainable only by Swiss citizens who hold the Certificate of Medical Studies (Akademische Zeugnis Certificat d Études Medicales), or who hold one of the following certificates which the Swiss Universities issue to those, not citizens of Switzerland, who complete a course of study and pass examinations equivalent to those taken by Swiss citizens in qualifying for the Swiss Federal Diploma

University of Basel—Academic Certificate on passing the medical examination for physicians (Akademische Zeugnis über die bestandene Fachprufung für Arzte)

University of Bern—Medical diploma on passing examination for medicine (Aerztliches Fakultats diplom über die bestandene Fachprufung für Ärzte)

University of Geneva and University of Lausanne—Certificate of Medical Studies (Certificat d Études Médicales)

University of Zurich—Medical diploma for Foreigners (Medizinisches Diplom für Ausländer)

United Kingdom

England

University of Birmingham Faculty of Medicine
University of Bristol Faculty of Medicine
University of Cambridge Faculty of Medicine
University of Durham Medical School Newcastle upon Tyne
University of Leeds Faculty of Medicine
University of Liverpool Faculty of Medicine
University of London †
University of Manchester Faculty of Medicine
University of Oxford Faculty of Medicine
University of Sheffield Faculty of Medicine

Northern Ireland

Queen s University of Belfast Faculty of Medicine

Scotland

University of Aberdeen Faculty of Medicine
University of Edinburgh Faculty of Medicine
University of Glasgow Faculty of Medicine
University of St Andrews Medical School, St Andrews and Dundee

Wales

Welsh National School of Medicine, University of Wales, Cardiff

The recommendation applies only to those physicians trained in the United Kingdom who hold medical degrees from the universities listed The recommendation does not apply to those physicians who received their medical training at these universities or their affiliated hospital medical schools but who obtained their qualifications through the examinations of the licensing corporations of the United Kingdom It must be observed, however that registration in the United Kingdom is granted equally to physicians holding the diplomas of the licensing corporations and to physicians holding university medical degrees

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† Work for the medical degree of the University of London is offered at the following hospital medical schools

Charing Cross Hospital Medical School
Guy s Hospital Medical School
King's College Hospital Medical School
London Hospital Medical School
Middlesex Hospital Medical School
Royal Free Hospital School of Medicine
St Bartholomew s Hospital Medical College
St George s Hospital Medical School
St Mary s Hospital Medical School
St Thomas Hospital Medical School
University College Hospital Medical School
Westminster Hospital Medical School

foreign medical schools, the councils are advised by the Advisory Committee on Foreign Medical Credentials, which is a committee composed of a large group of outstanding individuals representing medical education, educational foundations, licensing bodies, various government agencies, and other organizations interested in the problems of foreign trained physicians

The list is acknowledged to be a tentative one and the position of the councils with respect to schools not named in the list is that they neither approve nor disapprove of them Therefore, the credentials of graduates of schools not named in the list must be evaluated by those other agencies, organizations, or institutions to whom these individuals apply for recognition The 50 foreign medical schools now included in the list are given along with certain qualifying statements in table 25

The Council on Medical Education and Hospitals, with the cooperation of certain other interested organizations, is currently making an intensive study of all aspects of the problem presented by the many foreign trained physicians seeking licensure in this country Although the program as it currently exists remains in effect, other methods of dealing with this problem will be given serious consideration during this course of study

Postgraduate Continuation Courses for Physicians

This section is devoted to an analysis of the postgraduate courses offered in the United States during the period from July 1, 1953, to June 30, 1954 It will also deal briefly with some of the recent developments of unusual interest The Council has long been interested in postgraduate medical education and for the past 18 years has published semiannually in THE JOURNAL a list of courses available in the United States The current listing, which covers courses offered from July 1, 1954, to Jan 15, 1955, was published in the June 12, 1954, issue of THE JOURNAL and is available in reprint form The next listing will cover the period from Jan 16, 1955, to Aug 31, 1955 Following this list, all future postgraduate course listings by the Council will appear annually and will cover a period roughly corresponding to the academic school year, i e , Sept. 1 through Aug 31 of each year It is expected that the first such annual listing will be published sometime during the summer of 1955

The data presented in this section have been derived from forms submitted by the numerous institutions and organizations offering postgraduate courses Inasmuch as forms are only sent to those who are definitely known to have postgraduate programs, it is realized that some organizations inaugurating new programs last year may not have been included All such groups are urged to notify the Council so that they may be placed on the mailing list in order to be considered for inclusion in next year's listing

The courses discussed in this section are of variable length, subject and objective Although most of them are strictly postgraduate in nature, a number include basic science and other courses intended to prepare physicians in part for certification by the American boards in the specialties At the present time no attempt to distinguish such courses has been made However, with the publication of the first annual listing, all courses of this nature that have formerly been included in the postgraduate list, will be distinguished as "graduate courses "

In December, 1952, the House of Delegates of the A M A adopted the following definitions submitted by the Council on Medical Education and Hospitals covering medical education beyond the internship

> Graduate medical education consists of those programs pursued by individuals possessing the degree of Doctor of Medicine which are primarily designed to prepare them for entrance into a specific field of medicine Such programs include all specialty training as well as academic work in the clinical and basic medical sciences, and may lead to board certification or an advanced academic degree Graduate programs are usually conducted on a full time basis over a period of from one to several academic years They are generally of a formal nature as residencies, fellowships, preceptorships or intramural academic work and are generally conducted by medical schools, hospitals, or graduate medical schools
>
> Postgraduate medical education consists of those educational activities engaged in by individuals possessing the degree of Doctor of Medicine which are primarily designed to keep them abreast of their own particular field in medicine Such activities are intended to both refresh the individual in various aspects of his basic medical education and inform him of the new developments within his field, and do not lead to any formal advanced standing in the profession. Postgraduate programs may be on a full or part-time basis, but are usually of relatively short duration, i e , days to months The organization of these programs may be formal or informal, more often the latter They are conducted in a great variety of forms using many methods and technics They are sponsored by a diverse group of institutions, schools, and organizations Postgraduate programs may also include special training in very narrow fields of medicine such as subspecialties and new areas of study, as well as short basic science courses

Future annual listing of postgraduate and graduate courses by the Council will distinguish all courses on the basis of the above definitions

Courses Offered in 1953-1954 —For this discussion all postgraduate courses have been placed in one or another of three general groups The first includes short courses of less than five days' duration and will be referred to throughout simply as short courses The second group includes courses of five days' duration or longer, and will be referred to as long courses The third group will be referred to as miscellaneous courses and includes clinical conferences, graduate assemblies, seminars, study and circuit courses, and other postgraduate activities

Total Course Offerings and Attendance —During the year 1953-1954 there were a total of 1,684 courses offered in the United States It will be seen from table 26 that this represents approximately a 22% increase over the number of courses offered last year Most of this increase was accounted for by the greater number of long courses of five days' duration or more Although there was a moderate increase in the number of short courses offered the miscellaneous group actually decreased markedly in number It is interesting to note that the previous moderate decline in the total number of courses offered in 1952-1953 apparently is not continuing into a full scale downward swing During the year 150 long courses were cancelled but only a few of the short and miscellaneous courses were withdrawn

Table 26 also gives the attendance figures for the various groups Short courses showed a marked rise in total attendance over the previous year, whereas long courses had dropped in attendance in this period despite the increase in offerings Of unusual interest is the marked increase in attendance among the miscellaneous group despite the reduction in opportunities of this type A total registration of 77,017 physicians was reported for about 95% of the courses The remaining courses did not report attendance Data are not available from which it is possible to determine the number of physicians who enrolled in multiple courses Without such knowledge it is impossible to determine what percentage of the total physician population enrolled in continuation courses during the past year Nevertheless, the total registration in such courses during 1953-1954 indicates the need and augmented demand for postgraduate study

Distribution of Postgraduate Courses by State—All but 10 of the states reported some form of postgraduate courses during the year There is evidence to indicate that even these 10 states had some postgraduate opportunities within their borders, but information of such nature as to make it possible to include these in this report are not available Table 27 indicates the concentration of postgraduate opportunities in a few states to be evident from the fact that 1,290 or 76 5% of the total 1,684 courses offered were in either California, Illinois, Massachusetts, Michigan, New York, or Pennsylvania New York led all other states in total number of courses offered, and this was also true for long courses taken separately However, Illinois led the field for short courses and Michigan for the miscellaneous group Short courses were offered in all but 14 of the states, long courses in all but 15, and miscellaneous courses in all but 16

TABLE 26—*Postgraduate Courses Offered and Attendance, 1945-1954*

	Short Courses of Less Than Five Days Duration		Long Courses of Five or More Days Duration		Miscellaneous Clinical Conferences, Graduate Assemblies, Study and Circuit Courses and Seminars		Total Courses and Attendance	
Year	Total Courses	Attendance	Total Courses	Attendance	Total Courses	Attendance	Total Courses	Attendance
1945-1946	151	4 140	1,070	19 991	52	21,824	1,276	45 955
1946-1947	239	16 274	1,291	23 002	21	20 475	1,551	59 811
1947 1948	406	31 569	1,270	24,878	25	26,356	1,800	82 803
1948-1949	304	16 821	1,074	28,507	67	38,058	1 445	83 386
1949-1950	161	10,528	1,080	24 087	129	40 708	1 370	75,318
1950-1951	420	7,438	1 067	14 890	79	23 855	1,566	46 183
1951 1952	206	7 454	1,543	17 511	120	40,970	1,869	65 035
1952 1953	324	9 452	805	23 793	253	31,363	1,382	64,608
1953-1954	343	14 212	1 185	16,908	156	45,897	1,684	77,017
Totals	2,647	117,883	10,394	193,627	902	289,506	13,943	601,016

Arrangement and Duration of Courses—Table 28 shows that 616 or 35 6% of all courses offered were part-time courses, the remaining majority being full time Practically all of the miscellaneous group were of the full time type, as were 78% of the short courses However, only a little over 54% of the long courses were full time Short courses ranged in duration from three hours to four and a half days, and among the part-time group some included 30 hours of instruction extending over 15 weeks Long courses ranged from five days to three years The miscellaneous group ranged from one hour to two years with varying total durations Many of the courses in all three groups had variable time arrangements, and still others could be arranged to suit the requirements of the student Many courses were offered repeatedly during the year, especially among the long group Courses were offered in every month of the year, the fall and spring being especially popular seasons for all types of courses Most of the courses in all groups were open to all physicians, only a few being restricted to specialists

Facilities, Faculty, and Methods Employed—Facilities in which instruction took place varied considerably Hospitals, medical schools, or postgraduate medical schools were the most frequent sites for training in all types of courses However, clinics, hotels, and other facilities were used entirely or in part for many courses In most cases, some combination of these various facilities was employed

TABLE 27—*Postgraduate Courses by State, 1953-1954*

State	Short Courses	Long Courses	Miscellaneous Courses	All Courses
Alabama	1	8	17	21
Arizona	1		1	2
Arkansas	8			8
California	40	18	15	73
Colorado	7	5	2	14
Connecticut	2	11	8	16
Delaware	1		1	2
District of Columbia	8	5	1	9
Florida	7	2	2	11
Georgia	5	9	1	15
Illinois	81	211	4	296
Indiana	1	2	3	6
Iowa	28	1	2	31
Kansas	11	1	1	13
Louisiana	4	14	2	20
Maryland	6	12	1	19
Massachusetts	8	59	1	68
Michigan	6	66	81	123
Minnesota	19	10	1	30
Mississippi		1	2	3
Missouri	1	3	1	5
Nebraska	1		1	2
New Jersey		2		2
New Mexico			1	1
New York	16	616	17	649
North Carolina	5	8	9	22
Ohio	24	13	2	39
Oklahoma	5	5	8	18
Oregon	1	4		5
Pennsylvania	10	65	6	81
South Carolina	3		3	6
South Dakota		1		1
Tennessee	11	1	4	16
Texas	12	1	5	18
Utah	3	3	1	7
Vermont	2	2		4
Virginia	7	1		8
Washington	1	5	4	10
Wisconsin	2	4	1	7
Puerto Rico	1	1	2	4
Totals	343	1,185	156	1,684

The majority of the instructors were drawn from the ranks of medical school faculties, but a significant amount of teaching was contributed by physicians without medical school appointments Most of the instruction within a state was given by faculty derived from within the same state, but a sizable number of instructors were brought in from other states This was true in the case of states with medical schools as well as those without schools

Instruction was reported to be purely didactic in about a quarter of the courses of all types, and purely clinical in a slightly smaller proportion of courses The remainder were reported as employing both didactic and clinical methods

Content of Courses—Courses were offered in 59 different subjects that covered practically all fields of medicine to a greater or lesser degree (see table 29) Courses in surgery were more numerous than any other single subject, accounting for 13% of all offerings General medicine, obstetrics and gynecology, neuropsychiatry, ophthalmology and otolaryngology, and cardiovascular diseases followed in order Surgery was the most frequent subject for both short and long courses, but general medicine led in the miscellaneous group

Sponsorship and Financing of Postgraduate Courses—Practically every four year medical school in the country, with few exceptions, offered or took part in some postgraduate activities during the year In addition, a large number of individual hospitals and clinics offered courses Numerous state and county medical societies, as well as a number of national, regional, state, and local specialty societies offered or sponsored courses in their areas of interest. Several health departments and a number of federal agencies offered programs, in addition to some voluntary health agencies and miscellaneous groups, such as study clubs and some departments of general universities

Fees ranged from $5 for some short courses to over $1,000 for some long courses Although a number of short and miscellaneous courses charged no fee at all, very few of the long courses were without a fee In at least one case, a fellowship stipend was offered to a student taking the course It was not unusual for fees to vary for residents and nonresidents in which a state-owned medical school offered the course, as was also the case with members and nonmembers of some medical organizations sponsoring courses Many courses received support from health departments, voluntary health agencies, foundations, pharmaceutical firms, medical societies, federal agencies, and individual contributors

TABLE 28 —*Postgraduate Courses by Type 1953-1954*

Type	Short Courses	Long Courses	Miscellaneous Courses	All Courses
Full time	268	645	155	1 068
Part time	75	540	1	616
Totals	343	1,185	156	1,684

Recent Developments—Although all of the developments in postgraduate education cannot be touched upon here, a few significant items will suffice to indicate the trends in this field.

The ever increasing number of organizations and institutions involved in postgraduate education in various areas of the United States has led to a tremendous amount of duplication and unnecessary competition among courses This is being met by programs of coordination among the various sponsoring organizations in some areas Where there has been but a single medical school, such coordination has required only the cooperation of the state medical society, the medical school, state health department, and perhaps a few other interested agencies However, coordination of postgraduate education on a state level, where a large number of medical schools and other agencies are involved, poses more difficult problems but has been achieved in Massachusetts The Massachusetts Postgraduate Medical Institute, established a few years ago, has effectively passed through the experimental stage and has proved a success in that area The three medical schools, the school of public health, the state medical society, the state health department, and representatives of general and special medical societies and voluntary health agencies have pooled their resources and talent to coordinate their postgraduate efforts and expand the total program to meet the needs of all physicians in the area Many other areas of the country are studying this principle as a possible solution to their own problems

In the past year there have been a number of new attempts to offer "canned" postgraduate programs to physicians in their homes by mail The University of Kansas School of Medicine has offered a correspondence course in electrocardiography that has been favorably received by physicians in outlying areas The home study is being supplemented by a period of intramural work in the medical center as a part of the complete program

TABLE 29 —*Postgraduate Courses by Subject, 1953-1954*

Subject	Short Courses	Long Courses	Miscellaneous Courses	All Courses
Administrative medicine		1		1
Allergy	6	23	1	80
Anatomy	4	86	1	41
Arthritis	2	3	2	7
Anesthesiology	4	41	1	46
Bacteriology		13	4	17
Basic sciences	4	12		16
Biochemistry		1		1
Blood transfusions		1		1
Bronchoesophagology		7		7
Cardiovascular disease	81	62	14	107
Culdoscopy		1		1
Cytology		8	1	4
Dermatology and syphilology	5	21	5	81
Diabetes	5	1		6
Electrocardiography	4	34		38
Electroencephalography		3		3
Endocrinology	5	12		17
Endoscopy		16		16
Forensic medicine		2		2
Fractures	3	5		8
Gastroenterology	6	28		34
Geriatrics	8			3
Hematology	3	25		28
Hospital training		2		2
Industrial medicine		21	1	22
Microscopy and photomicrography		4		4
Internal medicine	15	73	10	98
Legal medicine	2		1	3
Malignant disease	6	8	5	19
Medicine general	47	21	76	144
Military medicine		1		1
Neurology and psychiatry	9	97	7	113
Neurological surgery		2		2
Obstetrics and gynecology	41	94	4	139
Ophthalmology	1	17		18
Ophthalmology and otolaryngology	25	86		111
Orthopedic surgery	4	19		23
Orthopedics		7		7
Otolaryngology		6		6
Otology		1		1
Parasitology		2		2
Pathology	2	46	1	49
Pediatrics	12	28	6	46
Physical medicine	2	9		11
Physiology	7	21		28
Physiological chemistry		8	4	12
Poliomyelitis	1	4		5
Proctology	5	13		18
Psychoanalytic training		1		1
Public health		14		14
Pulmonary diseases	5	11	2	18
Radiology	5	66	2	73
Roentgenology		1		1
Surgery	60	150	7	217
Therapy	3	1		4
Tropical medicine		2		2
Urology	5			5
Venereal disease	1	3		4
Totals	343	1 185	156	1 684

The University of Utah School of Medicine has developed a series of "postgraduate kits," which include a syllabus, phonograph record, a filmstrip, and viewer, all in a compact carrying case These are sent as units on loan to individual physicians in outlying areas With the limited number of units available the program has been of such success that its expansion is soon expected

Another example of the "canned program" is the development by the Audio-Digest Foundation with the California Medical Association of magnetic tape recordings accompanied by filmstrips that together constitute a package course These are in addition to the already widespread use of the regular Audio-Digest weekly tape recording of digests of current medical literature, which physicians receive on a subscription basis It will be of interest to medical educators generally to note that the profits of this program have all been assigned to the American Medical Education Foundation

One of the most dramatic and significant developments in postgraduate education in the past year has been in the new applications of television to this field During the fall, winter, and spring, the American Cancer Society sponsored a series of 40 color telecasts originating in the East and reaching six centers in the East and Midwest These were in effect closed-circuit programs since the special receiving equipment was only available to the medical societies cooperating in the program The program included numerous topics, all related to cancer, and was enthusiastically received by the groups viewing it Future expansion of the program to include other fields of medicine is currently under study

While the color television program mentioned above could only be viewed by large groups with special equipment, postgraduate education was also brought directly into the physician's home by television last fall and spring The University of Utah sponsored two series of programs for physicians over open-circuit, public-channel television using early morning hours at which time the public did not know the channel was operating In this way it was possible to bridge the gap between the medical center and the physician in his home The programs have been kinescoped and made available to other medical schools interested in using them

The New York Academy of Medicine during its annual postgraduate fortnight last fall utilized another technique that would make possible bringing postgraduate education into the physician's home by television This involves the use of a telecast that is received only as a clouded image unless the receiving set is equipped with a special decoding device and a decoding card This system was used at the fortnight before a group audience to demonstrate the principle of "scrambled image" television as a means of bringing postgraduate education into the physician's home on open circuit without the possibility of chance viewing by the lay public

Although all of these experimental programs have contributed much to the development of "long-distance" postgraduate teaching, at least one medical school, the University of Kansas, has developed extensive television facilities with long-term plans to use them for undergraduate and graduate teaching

In the past year there were two national conferences on postgraduate education The first was held in Atlantic City last fall under the auspices of the Committee on Continuation Education of the Association of American Medical Colleges At this meeting a number of individual papers were presented, and postgraduate program directors from many states were able to discuss their problems together The second such conference was during the Annual Congress on Medical Education and Licensure in February The program consisted of three panels of outstanding postgraduate medical educators who discussed various aspects of a preliminary report of the Council's current study of postgraduate medical education [14] This too served as a valuable opportunity for a meeting of minds on this subject among educators concerned with directing postgraduate programs throughout the country

For the past two years the Council has been engaged in a comprehensive survey of the whole field of postgraduate medical education This study was prompted by the growing interest and activity in postgraduate education and by requests for guidance in developing programs by many institutions and organizations all over the United States The survey has included a study of the institutions and organizations engaged in producing postgraduate programs All of the medical schools, schools of public health, graduate and postgraduate medical schools, state medical societies, and other groups engaged in postgraduate work have been visited in the course of the survey to gain first hand information on the problems in this field The individual courses offered by these institutions and organizations have been analyzed carefully for objectives, content, time and place arrangements, methods, and administration

In addition to this study of the producers of postgraduate education, by means of questionnaires a large, random, representative sample of the practicing physician population has been canvassed to include the consumers' views in the completed study The questions were designed to elicit information on the physicians' habits of continuation education in general, as well as their specific uses of and needs for postgraduate courses

A preliminary report of the results of the statistical phase of the survey was prepared early in 1954, and a preview of this report was published in May of this year [14] The final report of the entire survey is being prepared and will be published in 1955

Postgraduate medical education is rapidly becoming recognized as an integral part of the whole structure of medical education Its use is becoming more widespread and the institutions and organizations sponsoring such courses are becoming more numerous In the past year, there have been indications of increased efforts to bring postgraduate education to the physician by means of "canned programs" or by television Moreover, those concerned with the administration of postgraduate programs have had increasing opportunity to exchange ideas at nationwide meetings sponsored by the Association of American Medical Colleges and the A M A Coordination programs are emerging as an answer to the difficult problems of administration in postgraduate education In the past year postgraduate opportunities increased in numbers and became more widely distributed, and attendance figures rose encouragingly There is every indication that postgraduate education is making long strides both quantitatively and qualitatively, and it is hoped that the publication next year of the Council's survey of the field will aid this development

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[14] Vollan D D Preview of Principal Findings of American Medical Association Survey of Postgraduate Medical Education report of the Council on Medical Education and Hospitals J A M A 155 389 392 (May 22) 1954 Panel Discussion The Objectives of Postgraduate Medical Education, Annual Congress on Medical Education and Licensure February, 1954, Part 2, Reprint of Medical Education in the United States and Canada, to be published

APPROVED MEDICAL SCHOOLS IN THE UNITED STATES

ALABAMA

Birmingham

Medical College of Alabama, 620 South 20th Street Zone 5—Established in 1943 as a division of the University of Alabama Located in Birmingham in 1944 In 1945 the medical school assumed title to Jefferson Hospital and Hillman Hospital now used as the chief clinical teaching unit of the Medical College of Alabama. The entering class each year is limited to 80 students. The School of the Basic Medical Sciences on the University Campus established in 1920 and its faculty were moved to Birmingham in June 1945 and expanded into the present four year Medical College of Alabama. The medical college is coeducational Minimum requirements are three years of college work. Tuition for legal residents of Alabama is $400 per academic year plus incidental fees of $50 Transfer students to the upper classes not residents of Alabama are charged an equalization fee of $250 each session The registration for the 1953 1954 session was 295 graduates 61 The last session began for the first three classes on Sept 21 1953 The fourth year class started on Sept 8 1953 The session ended for all classes on May 30 1954 The next session for the first three classes will begin Sept. 15 1954 and end May 29 1955 The dean is James J Durrett, M.D

ARKANSAS

Little Rock

University of Arkansas School of Medicine 1209 McAlmont Street.—Organized in 1879 as the Medical Department of Arkansas Industrial University Present title in 1899 In 1911 the College of Physicians and Surgeons united with it and it became an integral part of the University of Arkansas The first class was graduated in 1880 Clinical teaching was suspended in 1918 but resumed in 1923 Coeducational since organization. The curriculum covers four sessions of nine months each Entrance requirements are three years of collegiate work The B S degree is conferred at the end of the second year The fees for the four years for residents of Arkansas are $380 a year enrollment is restricted to residents of Araknsas The registration for the 1953 1954 session was 318 graduates 72 The last session began Sept 21 1953 and ended June 14 1954 The next session will begin Sept. 20 1954 and will end June 13 1955 The dean is Hayden C Nicholson M.D

CALIFORNIA

Loma Linda—Los Angeles

College of Medical Evangelists, Loma Linda and 312 North Boyle Avenue Los Angeles Zone 33—Organized in 1909 The first class was graduated in 1914 The basic science departments are at Loma Linda the clinical departments at Los Angeles Coeducational since organization Three years of college work are required for admission Each of the four years of the medical curriculum consists of a nine month session In addition there is a required clinical clerkship in the summer between the junior and senior years The yearly tuitions including fees are respectively $1,286 $1,274.50 $1,277 75 $1,295.25 The registration for 1953-1954 was 365 including 92 seniors who received their degrees June 6 For the 1953-1954 session the beginning and closing dates were. freshmen Aug 27 1953-June 4 1954 sophomores Aug 30 1953 June 4 1954 juniors and seniors Sept. 13 1953 June 4 1954 For the 1954-1955 session the beginning and closing dates are freshmen Aug. 29 1954-June 3 1955 sophomores Sept 1 1954-June 3 1955 juniors and seniors Sept. 12, 1954-June 3 1955 The dean is Harold Shryock, M D., Loma Linda.

Los Angeles

University of Southern California School of Medicine, 2025 Zonal Avenue, Zone 33—Organized in 1885 as the University of Southern California College of Medicine. First class graduated in 1899 In 1908 it became the Los Angeles Medical Department of the University of California In 1909 the College of Physicians and Surgeons established in 1904 became the Medical Department of the University of Southern California Its activities were suspended in 1920 reorganized in May 1928 under present title Entrance requirements are three years of college work. Coeducational since organization Annual fees amount to approximately $920 Registration for 1953 1954 was 273 graduates 72 The last session began Sept. 21 1953 and ended June 12 1954 The next session will begin Sept 20 1954 and will end June 11 1955 The dean is Gordon E Goodhart, M D

San Francisco

University of California School of Medicine Medical Center San Francisco Zone 22—Organized in 1864 as the Toland Medical College The first class graduated in 1864 In 1873 it became the Medical Department of the University of California. In 1909 by legislative enactment, the College of Medicine of the University of Southern California at Los Angeles became a clinical department but was changed to a graduate school in 1914 In 1915 the Hahnemann Medical College of the Pacific was merged and elective chairs in homopathic materia medica and therapeutics were provided Coeducational since organization. Three years of collegiate work are required for admission The work of the first year is given at Berkeley and that of the last three years at San Francisco. The medical course consists of four academic years each containing two semesters of 16 weeks each The fees are $334 per academic year Nonresidents are charged $250 additional each year The registration for the 1953 1954 session was 309 graduates 74 The last session began Sept 14 1953 and ended June 18 1954 The next class will begin Sept 13 1954 and will end June 16 1955 The associate dean is John B Lagen M D

Stanford—San Francisco

Stanford University School of Medicine Stanford, 2398 Sacramento Street San Francisco—The main buildings are in San Francisco. The laboratories of anatomy bacteriology and experimental pathology chemistry and physiology are located on the campus at Stanford which is 30 miles southwest of San Francisco adjoining the city of Palo Alto The post office is Stanford Organized in 1908 when by agreement the interests of Cooper Medical College were taken over The first class graduated in 1913 Coeducational since organization Three years of collegiate work are required for admission. The quarter plan is in operation. An internship is a requirement for graduation. The average fee for each of the four years is $870 The registration for 1953-1954 was 239 graduates 64 The last session for all classes began Sept. 28 1953 and ended June 9 1954 The next session will begin Sept. 27 1954 and will end June 15 1955 The dean is Windsor Cooper Cutting, M.D

COLORADO

Denver

University of Colorado School of Medicine, 4200 East Ninth Avenue Zone 20—Organized in 1883 Classes were graduated in 1885 and in all subsequent years except 1898 and 1899 Denver and Gross College of Medicine were merged Jan 1 1911. Coeducational since organization The entrance requirements are three years of collegiate work. The fees average $655 per academic year Nonresidents are charged $2,000 additional each year The registration for 1953 1954 was 305 graduates 81 The last session began Sept 19 1953 and ended June 4, 1954 The next session will begin Sept. 28 1954 and will end June 10 1955 The dean is Robert C Lewis Ph.D

CONNECTICUT

New Haven

Yale University School of Medicine, 333 Cedar Street, Zone 11—Initial organization of the School of Medicine was completed in 1812 following passage of a bill by the Connecticut General Assembly in 1810 granting a charter for "The Medical Institution of Yale College" to be conducted under joint supervision of the College and the Connecticut State Medical Society Formally opened in 1813 first degrees conferred 1814 In 1884 with the approval of the Medical Society the original charter was amended to place the school definitely in the control of the College as the Medical School of Yale College. The name Yale College was changed to Yale University in 1887 and the name of the Medical School was automatically changed. The present name was adopted in 1918 Coeducational since 1916 The requirements for admission are three years of college work The fees average $829 per academic year The registration for 1953 1954 was 303 graduates 63 The last session began Sept. 23 1953 and ended May 29 1954 The next session will commence Sept 29 1954 and will end June 4 1955 The dean is Vernon W Lippard, M D

DISTRICT OF COLUMBIA

Washington

Georgetown University School of Medicine, 3900 Reservoir Road Northwest, Zone 7—Organized in 1851 First class graduated in 1852. The degree of Bachelor of Arts or Bachelor of Science or its equivalent from an approved college of arts and sciences is required for admission of nonveterans but veterans may be admitted with a minimum of 90 semester hours of credit The fees average $960 per academic year Registration for 1953-1954 was 455 graduates 107 The last session for freshmen started Sept. 14 1953 and ended May 22, 1954 the sophomore class started Sept. 14 1953 and ended May 22 1954 the junior class started Aug 26 1953 and ended May 14 1954 and the senior class started on May 25 1953 and ended on May 22, 1954 The date of graduation was June 7 1954 The next session for freshmen and sophomores will begin Sept 13 1954 and end on May 21 1955 the junior session began Aug. 25 1954 and will end May 13 1955 the senior session began May 24 1954 and will end May 21 1955 The date of graduation will be June 6 1955 The dean is Francis M Forster M D

George Washington University School of Medicine 1335 H Street, Northwest, Zone 5—Organized in 1825 as the Medical Department of Columbian College Also authorized to use the name "National Medical College" Classes were graduated in 1826 and in all subsequent years except in 1834-1838 and 1861 1863 inclusive The original title was changed to Medical Department of Columbian University in 1873 In 1903 it absorbed the National University Medical Department In 1904 by an Act of Congress the title of George Washington University was granted to the institution Coeducational since 1884 Three years of college work are required for admission The tuition is $550 per academic year Registration for 1953 1954 was 350 graduates 78 The last session began Sept 21 1953 and ended June 9 1954 The next session will begin Sept 20 1954 and will end on May 8 1955 The dean is Walter A Bloedorn M D

Howard University College of Medicine 520 W Street Northwest, Zone 1—Chartered in 1867 Organized in 1869 The first class was graduated in 1871 Coeducational since organization Negro students compose a majority of those in attendance The minimum requirements are four years of collegiate work but practically the bachelor's degree The course covers four years of 33 weeks each The fees are respectively $611 75 $601 75 $546 75 $546 75 The registration for 1953 1954 was 299 gradates 69 The last session began Sept 21, 1953 and ended June 4, 1954 The next session will begin Sept 20, 1954, and will end June 3, 1955 The dean is Joseph L Johnson, M D

GEORGIA

Atlanta

Emory University School of Medicine, 36 Butler Street (University P O)—Organized in 1854 as the Atlanta Medical College After several mergers and reorganization became Emory University School of Medicine in 1915 Three years of collegiate work are required for admission The course of study is four academic years of 36 weeks each The fees for each of the four academic years are $800 The registration for 1953 1954 was 285, graduates 70 The last session for first and second years began Aug 27 and Sept 1, 1953, and ended June 5, 1954 Third and fourth year classes began Aug 3 1953, and ended June 5 1954 The next session will begin Sept 16 for first year class, Sept 20 for second year and Sept 1 1954 for third and fourth year classes and will end June 4, 1955 In 1953, the departments of anatomy bacteriology, biochemistry, pharmacology and physiology of the School of Medicine were consolidated with these same departments in the Schools of Dentistry and Nursing to form the Division of Basic Sciences in the Health Services The dean is Richard Hugh Wood, M D

Augusta

Medical College of Georgia, University Place —Organized in 1828 as the Medical Academy of Georgia the name being changed to the Medical College of Georgia in 1829 After 1873 it was known as the Medical Department of the University of Georgia On July 1 1933, the name was changed to the University of Georgia School of Medicine On Jan 18, 1950 it became the Medical College of Georgia Property transferred to the university in 1911 Classes were graduated in 1833 and all subsequent years except 1862 and 1863 Coeducation was begun in 1920 Three years of college work are required for admission Fees for 1954-1955, $412 per academic year for residents of Georgia, non residents, $712 Only bona fide residents of Georgia admitted (with exception of A S T and V 12 Program students during World War II) The registration for the 1953-1954 session was 304, graduates 73 The 1954-1955 session for the fourth year class will begin Sept 6, 1954 and end June 6 1955, the first, second and third year classes will begin Sept 16, 1954, and end June 4, 1955 The dean is Harry B O Rear, M D

ILLINOIS

Chicago

Chicago Medical School, 710 South Wolcott Avenue —Founded in 1912 the Chicago Hospital College of Medicine In 1919 the name of the titution was changed to the Chicago Medical School The school moved its former location to its present site in the Medical Center in 1930 The Chicago Medical School is a nonsectarian coeducational institution It is chartered in the State of Illinois as a nonprofit institution A collegiate degree is required for admission The yearly tuition and fees are, respectively, $671, $880, $847, $649 The registration for 1953-1954 was 280, graduates 134 The last session for freshmen began Oct 5, 1953, and for sophomores July 6 1953, and ended June 19, 1954 The junior and senior session began Oct 5, 1953, and ended for seniors June 26, 1954 The junior class will end Sept 23 1954 The next session for freshmen, juniors, and seniors will begin Oct 4, 1954 and will end June 18, 25 and 18, 1955, respectively The sophomore class began July 6 1954, and will end June 18, 1955 The president is John J Sheinin, M D

Northwestern University Medical School, 303 East Chicago Avenue, Zone 11 —Organized in 1859 as the Medical Department of Lind University First class graduated in 1860 In 1864 it became independent as the Chicago Medical College It united with Northwestern University in 1869 but retained the name of Chicago Medical College until 1891, when the present title was taken Became an integral part of Northwestern University in 1905 Coeducational since 1926 The requirement for admission is three years of collegiate work The B S in medicine degree may be conferred before the end of the senior year The total fees are $930 each year The registration for 1953-1954 was 533, graduates 136 The last session began Sept 30, 1953, for freshmen, sophomores, and juniors and ended June 12, 1954 The senior session began June 17, 1953, and ended June 14 1954 The next session will begin Sept 29 1954 for freshmen, sophomores, and juniors and will end June 11 1955 The senior session began June 16, 1954, and will end June 13, 1955 The dean is Richard H Young, M D

Stritch School of Medicine of Loyola University, 706 South Wolcott Avenue, Zone 12—Organized in 1915 by acquisition of Bennett Medical College, which had been organized in 1869 Facilities enlarged by the acquisition of Chicago College of Medicine and Surgery Faculties in basic sciences put on full time basis and assumed name of Loyola University School of Medicine in 1917 Operated as an organic part of Loyola University Name officially changed to Stritch School of Medicine of Loyola University on April 15, 1948 Coeducational since organization Three years of collegiate work are required for admission The fees are $675 a year The registration for 1953 1954 was 336, graduates 83 The last session for freshmen and sophomores began Sept 28, 1953, and ended June 19, 1954, the session for juniors and seniors began Sept 8, 1953, and ended May 29, 1954 for seniors, June 5, 1954, for juniors The next session will begin Sept 27, 1954, and will end June 18, 1955, for the first two classes, it began Sept 7, 1954, and will end June 4, 1955, for juniors, for seniors the session began June 7, 1954, and will end May 28, 1955 Each student has a five week vacation sometime in the year The dean is John F Sheehan, M.D

University of Chicago, the School of Medicine, 58th Street and Ellis Avenue, Zone 37 —Organized in 1924 as a part of the Ogden Graduate School of Science of the University of Chicago In 1932, when the University of Chicago reorganized its departments, the medical departments were included in the Division of Biological Sciences The work of the first two years in the medical courses has been given on the University Quadrangles since 1899, but the last two years were offered only at Rush Medical College, which was affiliated with the university until 1927 when actual work in the clinical departments on the campus began After that time candidates for the degree of Doctor of Medicine could take the work of the first two years on the campus and the work of the third and fourth years either on the campus or at the Rush Medical College In June 1940 Rush Medical College became affiliated with the University of Illinois College of Medicine All undergraduate instruction is now given only on the campus of the University of Chicago A special function of the school is to train people for making contributions to the advancement of medical science The requirements for admission are three years of collegiate work. The curriculum covers 12 quarters of work The tuition fee averages $904 The registration for 1953 1954 was 280, graduates 69 Quarters begin in March June, September and December of each year The dean of the Division of the Biological Sciences is Lowell T Coggeshall, M D

University of Illinois College of Medicine, 1853 West Polk Street, Zone 12 —Organized in 1882 as the College of Physicians and Surgeons The first class graduated in 1883 It became the Medical Department of the University of Illinois by affiliation in 1897 Relationship with the university was canceled in June 1912 and was restored in March, 1913 when the present title was assumed The staff of the Rush Medical College was incorporated in the University of Illinois College of Medicine in 1942 and at the same time Presbyterian Hospital Chicago became a teaching unit of the university Coeducational since 1898 Three years of collegiate work are required for admission The B S in medicine degree may be conferred at the end of the second year The fees for residents of Illinois average $288 per academic year, nonresidents pay an additional fee of $300 The registration for the 1953 1954 session was 667, graduates 169 The last session began Sept 28, 1953 and ended June 19 1954 The next session will begin Sept 27 1954, and will end June 18, 1955 The dean is Granville A Bennett, M.D

INDIANA

Bloomington-Indianapolis

Indiana University School of Medicine, Bloomington, 1040 West Michigan Street, Indianapolis, Zone 7 —Organized in 1903 but did not give all the work of the first two years of the medical course until 1905 In 1907 by union with the State College of Physicians and Surgeons, the complete course in medicine was offered In 1908 the Indiana Medical College, which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1878), the Central College of Physicians and Surgeons (organized in 1879), and the Fort Wayne College of Medicine (organized in 1879) merged into it The first class was graduated in 1908 Coeducational since organization Three years of college work are required for admission The work of the first two semesters is given at Bloomington, the remainder of the work at Indianapolis Regular fee for two semesters of work is $320 for residents of Indiana and $600 for nonresidents The registration for the 1953 1954 session was 575, graduates 139 The present session for junior and senior students began June 15, 1954, and will end June 14, 1955 The next session for sophomore students will begin Sept 15 1954, and end June 11, 1955 The dean is John D Van Nuys, M.D , Indianapolis

IOWA

Iowa City

State University of Iowa College of Medicine, University Campus—Organized in 1869 First session began in 1870 First class graduated in 1871 Absorbed Drake University College of Medicine in 1913 Coeducational since 1870 Three years of collegiate work are required for admission The B A degree in the combined course of liberal arts and medicine is conferred The tuition fee is $256 each year for residents of Iowa and $566 for nonresidents The registration for 1953 1954 was 458, graduates 116 The last session began Sept 24, 1953 and ended June 11, 1954 The next session will begin Sept 23 1954, and will end on June 10, 1955 The dean is Norman B Nelson, M D

KANSAS

Lawrence-Kansas City

University of Kansas School of Medicine, Lawrence, Thirty Ninth and Rainbow Boulevard Kansas City —Organized in 1880 It offered only the first two years of the medical course until 1905, when it merged with the Kansas City (Mo) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894 and the Medicochirurgical College, founded in 1897 Absorbed Kansas Medical College of Topeka in 1913 The first class graduated in 1906 At present the first year is given on the university campus at Lawrence while the remaining three years are given at the Medical Center in Kansas City, Kansas Coeducational since 1880 The requirement for admission is three years of collegiate work, four years preferred The fees are $475 per year, the nonresident fees are $925 per year The registration for 1953 1954 was 456, graduates 105 The last session began June 9, 1953, and ended May 29, 1954 The next freshman class will begin Sept. 8, 1954 The sophomore class of 1954 will begin its work on Sept 16 1954, at Kansas City The junior and senior classes began June 8, 1954 and will end May 28 1955 Three fourths of each junior and senior class is in school each quarter of the school year while one fourth is on vacation (juniors) or preceptorship (seniors) The dean is W Clarke Wescoe, M.D , Kansas City

KENTUCKY

Louisville

University of Louisville School of Medicine, 101 West Chestnut Street, Zone 2—Organized in 1837 as Louisville Medical Institute The first class graduated in 1838 and a class graduated each subsequent year except 1863 In 1846 the name was changed to University of Louisville Medical Department. In 1907 it absorbed the Kentucky University Medical Department, in 1908 the Louisville Medical College the Hospital College of Medicine and the Kentucky School of Medicine. In 1922 its name was changed to the University of Louisville School of Medicine Coeducational since organization became nonsegregational in 1951 Three years of collegiate work are the minimum requirements for admission Tuition is $800 for residents of Kentucky and $1,200 for nonresidents per school year These figures include special fees excepting graduation fee of $10 The registration for 1953 1954 was 381 graduates 92. Administratively the school year is divided into two semesters and students are accepted for matriculation only at the beginning of the first semester Academically the senior and junior years are on a trimester basis the sophomore year is divided into four unequal periods and the freshman year into three unequal periods The last session began Sept. 14 1953 and ended June 5 1954 The next session begins on Sept. 13 1954 and will end on June 4 1955 The dean is J Murray Kinsman M.D

LOUISIANA

New Orleans

Louisiana State University School of Medicine, 1542 Tulane Avenue, Zone 12—Organized January 1931 as Louisiana State University Medical Center Present title in 1939 Coeducational. First session began in October 1931 with students of first and third years Course covers four sessions of not less than 36 weeks each. A minimum of three years collegiate work is required for admission Total fees $120 each year for residents of Louisiana additional tuition of $400 each year for nonresidents The registration for 1953 1954 was 448 graduates 107 The last session began Aug 31 1953 and ended May 29 1954 The current session began Aug. 30 1954 and will end May 28 1955 The dean is William W Frye, M D

Tulane University of Louisiana School of Medicine, 1430 Tulane Avenue, Zone 12—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1836 and in all subsequent years except 1863 1865 inclusive It became the Medical Department of the Tulane University of Louisiana in 1884 Present title in 1813 Coeducational since 1915 A minimum of three years of collegiate work is required for admission Total fees average $800 per academic year The registration for the 1953 1954 session was 516 graduates 128 The last session began on Sept. 14 1953 and ended on June 1 1954 The next session will begin Sept. 13 1954 and will end May 31 1955 The dean is M. E Lapham M D

MARYLAND

Baltimore

Johns Hopkins University School of Medicine 710 North Washington Street.—The nucleus of a medical faculty was constituted in 1883 Systematic postgraduate instruction in pathology and bacteriology was begun in 1886 School was fully organized and opened in 1893 The first class graduated in 1897 Coeducational since organization The requirement for admission is a college degree The course extends over four years of eight and one-half months each. The fees average $939 per academic year The registration for 1953 1954 was 294 graduates 77 The last session began on Sept 28 1953 and ended June 8 1954 The next session will begin Oct 4 1954 and will end June 14 1955 The dean is Philip Bard, Ph.D

University of Maryland School of Medicine and College of Physicians and Surgeons, 522 West Lombard Street Zone 1—Organized in 1807 as the College of Medicine of Maryland The first class graduated in 1810 In 1812 it became the University of Maryland School of Medicine Baltimore Medical College was merged with it in 1913 In 1915 the College of Physicians and Surgeons of Baltimore was merged and the present name assumed Coeducational since 1918 Three years of college work are required for admission The tuition fees average $533 for residents of the state for nonresidents $250 additional. The registration for 1953-1954 was 404 graduates 96 The last session began Sept. 17 1953 and ended June 5 1954 The next session will begin Sept. 16 1954 and will end June 4 1955 The dean is H Boyd Wylie M.D

MASSACHUSETTS

Boston

Boston University School of Medicine 80 East Concord Street, Zone 18—Organized in 1873 as a homeopathic institution In 1874 the New England Female Medical College founded in 1848 was merged into it. The first class was graduated in 1874 Became nonsectarian in 1918 Coeducational since organization Applicants are required to present a minimum of three years of premedical work Total fees average $881 per year The registration for 1953 1954 was 288 graduates 66 The last session for freshmen sophomores and juniors began Sept. 14 1953 and ended May 29 1954 The last senior class began June 15 1953 and ended June 6 1954 The present senior class began June 14 1954 and will end June 5 1955 All other classes will be enrolled Sept. 13 1954 and the session will end May 28 1955 The dean is James M Faulkner M.D

Harvard Medical School, 25 Shattuck Street, Zone 15—Organized in 1782 The first class graduated in 1788 At least two years of collegiate work are required for admission The fees average $850 Beginning with the academic year 1954 1955 the fees will average $1 050 The registration for 1953 1954 was 531 graduates 148 The last session began Sept. 28 1953 and ended on June 17 1954 The next session for freshmen, sophomores, and juniors will begin Sept. 27 1954 and will end June 16, 1955 The senior class began on June 7 1954 and will end June 16 1955 The dean is George Packer Berry M.D

Tufts College Medical School, 136 Harrison Avenue Zone 11—Organized in 1893 as the Medical Department of Tufts College The first class graduated in 1894 Coeducational since 1894 A bachelor's degree is required for admission although exceptions are occasionally made for outstanding students Enrollment is generally limited to residents of the New England states graduates of New England colleges and sons or daughters of alumni The course covers four years Total fees for each of the four years respectively $863 $858 $858 $868 The registration for 1953-1954 was 449 graduates 110 The last session for freshmen sophomores and juniors began Sept. 23 1953 for seniors June 15 1953 and all classes ended June 13 1954 The present session began for seniors on June 14 1954 and for the other classes will begin Sept. 22, 1954 and will end June 12, 1955 The dean is Joseph M. Hayman Jr., M.D

MICHIGAN

Ann Arbor

University of Michigan Medical School.—Organized in 1850 as the University of Michigan Department of Medicine and Surgery The first class graduated in 1851 Present title assumed 1915 Coeducational since 1870 The entrance requirements are three years of collegiate work. The fees average $400 per academic year nonresidents $700 a year The registration for 1953 1954 was 728 graduates 155 The last session began Sept. 21 1953 and ended June 12, 1954 The next session will begin Sept. 20 1954 and will end June 11 1955 except for seniors who are on a rotation schedule and whose session begins June 21 1954 and ends June 11 1955 The dean is A. C Furstenberg M.D

Detroit

Wayne University College of Medicine 1401 Rivard Street, Zone 7—Organized as the Detroit College of Medicine in 1885 by consolidation of the Detroit Medical College (organized in 1868) and the Michigan College of Medicine (organized 1879) Reorganized with the title of Detroit College of Medicine and Surgery in 1913 The first class graduated in 1869 In 1918 it became a municipal institution under the control of the Detroit Board of Education In 1934 the name was changed by action of the Detroit Board of Education to Wayne University College of Medicine, as a part of the program of consolidation of the Detroit city colleges into a university system Coeducational since 1917 Entrance requirement is three years in an accredited college or university Until further notice enrollment is limited to residents of the State of Michigan The fees average $537 for the school year The registration for 1953 1954 was 277 graduates 65 The last session began Sept 14 1953 and ended June 12, 1954 The next session will begin Sept 13 1954 and will end June 11 1955 The dean is Gordon H Scott, Ph.D

MINNESOTA

Minneapolis

University of Minnesota Medical School Zone 14—Organized in 1883 as the University of Minnesota College of Medicine and Surgery and reorganized in 1888 by absorption of the St. Paul Medical College and Minnesota Hospital College The first class graduated in 1889 In 1908 the Minneapolis College of Physicians and Surgeons organized in 1883 was merged In 1909 the Homeopathic College of Medicine and Surgery was merged Present title in 1913 Coeducational since organization The entrance requirements are three years of university work. Students are required to meet the requirements for a degree of B.S or B.A before receiving the degree of Doctor of Medicine (M.D) which is granted at the end of the course Total fees are $361.50 per academic year for residents and $700 for nonresidents The registration for 1953 1954 was 490 graduates 133 The last session began Sept. 28 1953 and ended July 17 1954 The next session will begin Sept. 27 1954 and will end July 17 1955 The school year of the first three years consists of fall and winter quarters of approximately 11 weeks and a spring quater of approximately 16 weeks in the senior year the spring quarter is 11 weeks in length and graduation is in June. The dean of medical sciences is Harold S Diehl M.D

MISSOURI

St Louis

St. Louis University School of Medicine 1402 South Grand Boulevard, Zone 4—Organized in 1901 as the Marion Sims Beaumont Medical College by union of Marion Sims Medical College organized in 1890 and Beaumont Hospital Medical College organized in 1886 First class graduated in 1902 It became the School of Medicine of St Louis University in 1903 Completion of three years of college study is the minimum admission requirement but students presenting meritorious credits in excess of minimum are accepted by preference The fees average $ 96.25 per year The registration for 1953-1954 was 491 graduates 132. The last session began Sept. 15 1953 and ended June 1 1954 The next session will begin Sept. 14 1954 and will end June 1 1955 The dean is James W Colbert Jr., M.D

Washington University School of Medicine 660 South Kingshighway Zone 10—Organized in 1842 as the Medical Department of St. Louis University The first class graduated in 1843 In 1855 it was chartered as an independent institution under the name of St. Louis Medical College In 1891 it became the Medical Department of Washington University In

1899 it absorbed the Missouri Medical College Coeducational since 1918 Three years of college work are required for admission The fees average $906 The registration for 1953-1954 was 366 graduates 96 The last session began on Sept 14 1953 and ended June 9, 1954 The next session will begin on Sept 13, 1954 and will end on June 8, 1955 The dean is Carl V Moore, M D

NEBRASKA

Omaha

Creighton University School of Medicine, 302 North Fourteenth Street, Zone 2—Organized in 1892 as the John A Creighton Medical College The first class graduated in 1893 Present title in 1921 Coeducational since organization Three years of collegiate work are required for admission The tuition fees average $809 per academic year The registration for 1953 1954 was 300 graduates 70 The last session began Sept 14, 1953 and ended June 3 1954 The next session will begin Sept 13, 1954, and will end June 2 1955 The dean is F G Gillick M D

University of Nebraska College of Medicine, Forty Second Street and Dewey Avenue Zone 5—Organized in 1881 as the Omaha Medical College The first class graduated in 1882 It became the Medical Department of Omaha University in 1891 The University of Nebraska College of Medicine was established in Lincoln in 1883 and in 1902 the Omaha Medical College became a part of the University of Nebraska and has continued with the present title College of Medicine University of Nebraska The instruction of the first two years was given at Lincoln and of the last two years at Omaha until 1913 when the work of all four years was transferred to Omaha Coeducational since 1882 Three years of college work are required for admission The B S degree in medicine is conferred at the end of the second year The fees average $450 per academic year, nonresidents are charged $615 The registration for 1953 1954 was 344, graduates 92 The last session for seniors began July 6 1953 and ended June 12, 1954 The last session for freshmen sophomores and juniors began Sept 23 1953 and ended June 19 1954 The present session for seniors began July 6 1954 and will end June 18 1955 The next session for freshmen, sophomores and juniors will begin Sept 22, 1954 and will end June 18, 1955 The dean is James P Tollman M D

NEW YORK

Albany

Albany Medical College, 47 New Scotland Avenue, Zone 3—Organized in 1838 The first class graduated in 1839 It became the Medical Department of Union University in 1873 In 1915 Union University assumed educational control Coeducational since 1915 The requirement for admission is three years of college work The fees average $1 007 per academic year The registration for 1953 1954 was 212, graduates 53 The last session began on Sept 14 1953 for the freshman and sophomore classes, the freshman year ending on June 3 1954 and the sophomore year on May 29 1954, the junior year began on Sept 8, 1953 and closed on May 20, 1954 for the seniors the last session began on June 1 1953, and ended on May 31 1954 The present senior class began on June 1, 1954 The next session for the freshmen and sophomores will begin on Sept 8 1954, and will end on May 28, 1955 The current session for the juniors began Sept 7, 1954 and will end on May 24 1955 The dean is Harold C Wiggers, Ph D

Buffalo

University of Buffalo School of Medicine, 3435 Main Street—Organized in 1846 The first class granduated in 1847 It absorbed the Medical Department of Niagara University in 1898 Coeducational since organization The minimum requirement for admission is four years of collegiate work including certain prescribed science subjects The fees average $878 The registration for 1953 1954 was 279, graduates 70 The last session began Sept 21 1953, and ended June 12 1954, for freshmen, sophomores and juniors, and began on Aug 31, 1953 and ended June 5, 1954, for seniors The next session will begin Sept 20 1954, and end June 11, 1955, for freshmen sophomores, and juniors, and began Aug 30 1954, and will end June 4, 1955, for seniors The dean is Stockton Kimball, M D

New York City

Columbia University College of Physicians and Surgeons, 630 West 168th Street, Zone 32—The medical faculty of Columbia College, then known as King's College was organized in 1767 Instruction was interrupted by the War of the Revolution The faculty was reestablished in 1792 and merged in 1814 with the College of Physicians and Surgeons, which had received an independent charter in 1807 In 1860 the College of Physicians and Surgeons became the Medical Department of Columbia College This merger became permanent by legislative enactment in 1891 Columbia College became Columbia University in 1896 The medical school has been coeducational since 1917 Three years of collegiate work are required for admission Fees average $900 per academic year The registration for 1953-1954 was 465, graduates 111 The last session began June 8, 1953 for juniors, and June 1, 1953 for seniors, and ended on May 29, 1954 The last session for freshmen and sophomores began on Sept 14, 1953, and ended May 29, 1954 The present session began on June 7, 1954, for juniors and June 1, 1954 for seniors and will begin on Sept 13 1954, for the freshmen and sophomores and will end May 31, 1955 The dean is Willard C Rappleye, M D

Cornell University Medical College, 1300 York Avenue, Zone 21—Organized in 1898 Coeducational since organization All students matriculated must be graduates of approved colleges or scientific schools or seniors *in absentia* who will receive the bachelor's degree from their college on successful completion of one or more years of the medical course The fees average $925 a year The registration for 1953 1954 was 337, graduates 83 The last session began for senior students June 22, 1953 and ended June 9 1954 The freshman, sophomore and junior classes began Sept 9 1953, and ended June 9, 1954 The present session for seniors began July 5, 1954 and will begin for the remaining three classes on Sept 15, 1954, and all classes will end June 8, 1955 The dean is E Hugh Luckey, M D

New York Medical College, Flower and Fifth Avenue Hospitals, 1 East 105th Street—Organized in 1858 Incorporated in 1860 as the Homeopathic Medical College of the State of New York The title New York Homeopathic Medical College was assumed in 1869, the title New York Homeopathic Medical College and Hospital in 1887, the title New York Homeopathic Medical College and Flower Hospital in 1908, the title New York Medical College and Flower Hospital in 1936, the present title of New York Medical College, Flower and Fifth Avenue Hospitals, June 22, 1938 First class graduated in 1861 Coeducational since 1919 Four years of college work leading to a baccalaureate degree required for admission but a degree is preferred The fees average $865 per academic year The registration for 1953-1954 was 478, graduates 112. The last session began Sept 14, 1953, and ended June 2, 1954 The next session will begin Sept. 13, 1954 for first and second year students Third year students began June 7, 1954, and fourth year students May 23, 1954 The Executive Dean is Ralph E Snyder, M D

New York University College of Medicine, 550 First Avenue, Zone 16—This is the undergraduate medical college of the New York University Bellevue Medical Center, which also includes the New York University Postgraduate Medical School and the University Hospital The Medical Department of New York University (then called the University of the City of New York) was organized in 1841 as the University Medical College In 1898 the Bellevue Hospital Medical College which had been established in 1861 joined New York University and the consolidated school was called the New York University-Bellevue College of Medicine. In 1935 the present name was adopted In 1947 the charter of the university and the statutes were amended establishing the New York University Bellevue Medical Center, which includes the College of Medicine. The entrance requirements are not less than three full years in an approved college of arts and sciences, and preference is given to those who have completed four years This medical school has been coeducational since 1919 The fees average $917 per academic session The registration for 1953-1954 was 530 graduates 121 The last session began Sept 14, 1953, and ended May 22 1954, for freshmen and sophomores, May 29, 1954, for seniors, and Sept 11, 1954 for juniors The next session begins Sept 13 1954 for freshmen, sophomores and juniors, and Sept 21, 1954, for seniors This session will end May 21, 1955 for freshmen and sophomores Sept 10 1955, for juniors, and June 4, 1955, for seniors The dean is Currier McEwen M D

State University of New York College of Medicine, 350 Henry Street, Zone 2—Originally organized in 1858 as the collegiate department of the Long Island College Hospital The first class was graduated in 1860 and the last class in 1930 Chartered in 1930 as the Long Island College of Medicine with the first class graduated in 1931 and the last in 1949 It was merged with the State University of New York on April 5, 1950, and the first class under the university was graduated in June 1950 Coeducational Three years of collegiate work, including specified courses are required for admission The fees are $715 per academic year The registration for 1953 1954 was 573, graduates 131 The last session for the seniors began Sept. 14 1953, and ended June 5 1954 The last session for juniors began on Sept 21 1953, and ended on June 5 1954 The last session for freshmen and sophomores began on Sept 21 1953 and ended June 12, 1954 The next session for freshmen, sophomores, and juniors begins Sept 20, 1954, and will end on June 11, 1955 For the seniors the next session will begin Sept. 13 1954, and will end on June 4, 1955 The acting dean is Howard Potter, M D

Rochester

University of Rochester School of Medicine and Dentistry, 260 Crittendon Boulevard Zone 20—Organized in 1925 as the Medical Department of the University of Rochester Coeducational since organization. Three years of collegiate work are required for admission The fees are $800 per academic year The registration for 1953-1954 was 280, graduates 69 The last session began Sept 21, 1953, and ended June 12, 1954 The next session will begin on Sept 13, 1954, and will end on June 11, 1955 The dean is Donald G Anderson, M D

Syracuse

State University of New York College of Medicine, 766 Irving Avenue Zone 10—Organized in 1872 when the Geneva Medical College, chartered in 1834, was removed to Syracuse, under the title 'The College of Physicians and Surgeons of Syracuse University' Assumed title Syracuse University College of Medicine in 1875, when a compulsory three year graded course was established The College of Medicine was merged with the State University of New York on June 26 1950, when the present title was assumed The first class graduated in 1873 and a class graduated each subsequent year In 1889 the amalgamation with the university was made complete Course extended to four years in 1896. Coeducational since organization Three years of collegiate work are required for admission The fees average $715 per academic year The registration for 1953-1954 was 285, graduates 66 The last session began Sept 14 1953, and ended June 12, 1954 The next session will begin Sept. 13, 1954, and end June 11 1955 The dean is William R. Willard M D

NORTH CAROLINA

Chapel Hill

University of North Carolina School of Medicine.—Organized in 1890 Until 1902 this school gave only the work of the first two years when the course was extended to four years by the establishment of a department in Raleigh. The first class was graduated in 1903 A class was graduated each subsequent year including 1910 when the clinical department at Raleigh was discontinued. Coeducational since 1914 Three years of college work are normally required for admission The tuition is $600 per year for residents for nonresidents an additional $600 per year The registration for 1953 1954 was 226 The North Carolina legislature in 1947 appropriated funds for the expansion of the school to the full four years The first senior class of 48 students graduated June 7 1954 The last regular session began Sept. 18 1953 and ended June 7 1954 The next session will begin Sept. 14 1954 and will end June 6 1955 The dean is W Reece Berryhill M.D

Durham

Duke University School of Medicine.—Organized in 1930 The first class was admitted Oct. 1 1930 Coeducational. The premedical requirement is three years of college work. The academic year consists of three quarters each year There is no summer quarter between the first and second year but in the two clinical years the subjects of the autumn, winter and spring terms are repeated in the summer quarter This accelerated schedule is optional and students may take their first year and three quarters in each of their subsequent years, and receive their certificates in four calendar years, or if they receive permission from the curriculum committee they may at the end of their second year take the clinical quarters given during the summers and receive their certificates in three and one-quarter calendar years. The B.S degree in medicine may be conferred for special work after six quarters. Students are urged to spend three years in hospital or laboratory work after graduation and must give assurance satisfactory to the committee on health affairs that they will spend at least two years. Active duty with the Army Navy or Public Health Service can replace the second year The fees are $922.50 for three quarters The registration for 1953 1954 was 316 graduates 80 During 1954 the quarters begin Jan 4 March 29 July 6 Oct. 4 and end March 20 June 12 Sept. 18 and Dec 18 The next first year class will be enrolled Oct 4 1954 and will end June 11 1955 The dean is Wilburt C. Davison M D

Winston-Salem

Bowman Gray School of Medicine of Wake Forest College Zone 7—Organized in 1902 at Wake Forest as a school offering only the first two years of the curriculum. In 1941 the school was moved to Winston-Salem and expanded to a complete four year medical school under its present name Coeducational Three years of college work are required for admission Clinical departments operate four quarters in the year however the plan of operation makes it possible for students to be out of school during one quarter of each of the clinical years for research for study elsewhere or for earning money to help defray expenses for their education. Tuition is $750 per school year The registration for 1953-1954 was 200 graduates 50 The last session for the freshman class began Oct. 5 1953 sophomores Oct. 5 1953 juniors and seniors July 13 1953 and ended for freshmen sophomores, juniors and seniors on June 12, 1954 The present junior and senior classes began July 12, 1954 and will end on June 11 1955 The next freshmen and sophomore classes will begin Oct 4 1954 and will end June 11 1955 The dean is C C. Carpenter M D

OHIO

Cincinnati

University of Cincinnati College of Medicine Eden and Bethesda Avenues Zone 19—Organized in 1819 as the Medical College of Ohio Became the Medical College of the University of Cincinnati in 1896 In 1909 the Miami Medical College (founded in 1852) was merged with the University of Cincinnati s Medical School Coeducational since organization Three years of collegiate work are the minimal requirements for admission but a bachelor s degree is strongly recommended Tuition for legal residents of Cincinnati is $575 a year plus breakage fees $125 additional for those not legal residents The registration for 1953-1954 was 352 graduates 89 The last session for freshmen and sophomores began Sept. 21 1953 and ended May 31 1954 The last session for juniors and seniors began Sept 8 1953 and ended for juniors June 12, 1954 and for seniors May 31 1954 The present session for juniors and seniors began Sept. 7 1954 and will end for juniors June 11 1955 and for seniors May 28 1955 The next session for freshmen and sophomores will begin Sept. 20 1954 and will end May 28 1955 The dean is Stanley E Dorst, M.D

Cleveland

Western Reserve University School of Medicine 2109 Adelbert Road Zone 6—Organized in 1843 as the Cleveland Medical College in cooperation with Western Reserve College The first class graduated in 1844 The school assumed the present title in 1881 In 1910 the Cleveland College of Physicians and Surgeons was merged Coeducational since 1919 Students are required to have three years of college work for admission four years preferred The fees average $800 per academic year The registration for 1953 1954 was 335 graduates 85 The last session began Sept. 23 1953 for freshmen and ended June 16 1954 For sophomores the last session began Sept. 16 1953 and ended June 18 1954 For juniors the last session began Sept 16 1953 and ended June 4 1954 For seniors the last session began Aug 31 1953 and ended June 17 1954 The next session for freshmen will begin on Sept. 22 1954 and will end June 15 1955 The next sophomore session will begin Sept 8 1954 and will end June 17 1955 The next session for juniors will begin Sept. 8 1954 closing date to be announced The next senior session will begin Aug. 30 1954 and will end June 15 1955 The dean is Joseph T Wearn M D

Columbus

Ohio State University College of Medicine, Neil and Eleventh Avenues Zone 10—The present College of Medicine became a part of the Ohio State University in 1914 It incorporates all the previous medical college interests in central Ohio standing upon a foundation of six medical schools the Medical Department of Willoughby University of Lake Erie, 1834-1846 the Willoughby Medical College of Columbus, 1846-1847 the Starling Medical College 1847-1907 the Columbus Medical College, 1875-1892 the Ohio Medical University 1892-1907 Starling-Ohio Medical College 1907-1914 Graduates of these colleges by action of the board of trustees are considered alumni of the Ohio State University Coeducational since organization Three years of collegiate work are required for admission Tuition fees average $525 per academic year and $255 additional for nonresidents The registration for 1953 1954 was 575 graduates 136 The last session began Sept 29 1953 and ended June 11 1954 The next session will begin Sept. 28 1954 and end June 10 1955 The dean is Charles A. Doan M.D

OKLAHOMA

Oklahoma City

University of Oklahoma School of Medicine, 801 Northeast Thirteenth Street, Zone 4—Organized in 1900 Until 1910 gave only the first two years of the medical course at Norman Okla. after which a clinical department was established at Oklahoma City through consolidation with the Medical School of Epworth University The first class graduated in 1911 Coeducational since organization. A new medical school building and a second teaching hospital became available in 1928 and since September of that year the entire four year course has been given in Oklahoma City Prerequisites for admission are three years of college work. The fees for residents of Oklahoma are $400 nonresidents $800 The registration for 1953 1954 was 380 graduates 81 The last session began Sept. 14 1953 and ended June 6 1954 The next session for freshmen and sophomores will begin Sept. 13 1954 the junior class will begin on Sept. 1 1954 the senior session began June 21 1954 all sessions end on June 5 1955 The dean is Mark R Everett Ph.D

OREGON

Portland

University of Oregon Medical School, 3181 Southwest Sam Jackson Park Road Zone 1—Organized in 1887 The first class graduated in 1888 and a class graduated each subsequent year except 1898 The Willamette University Medical Department was merged in 1913 Coeducational since organization Entrance requirement is three years of collegiate work. The total fees are $456 a year for residents of Oregon and $180 a year additional for nonresidents plus a breakage deposit of $15 a year for the first two years The registration for 1953 1954 was 267 graduates 56 The last session began Sept 30 1953 and ended June 18 1954 The next session will begin Sept. 29 1954 and will end June 11 1955 The dean is D W E Baird M.D

PENNSYLVANIA

Philadelphia

Hahnemann Medical College and Hospital of Philadelphia, 235 North Fifteenth Street, Zone 2.—Formed by the successive union of several institutions The earliest original charter was obtained in 1848 The name Hahnemann Medical College was taken by one of these institutions in 1867 The present name was assumed in 1885 The first class graduated in 1849 Coeducational since 1941 A minimum of three years of collegiate work in an approved college of arts and sciences is required for admission. Fees for 1954-1955 session respectively for the first, second, third, and fourth year classes are $847 $847 $847 and $877 The registration for 1953 1954 was 393 graduates 99 The last session began for all students Sept. 14 1953 and ended for the first, second, and third year classes on June 12, 1954 and for the fourth year class on June 17 1954 The next session for all classes will begin Sept. 13 1954 and will end for the first, second and third year classes June 11 1955 and for the fourth year class June 16 1955 The dean is Charles L. Brown M.D

Jefferson Medical College of Philadelphia, 1025 Walnut Street.—Organized in 1825 as the Medical Department of Jefferson College Canonsburg, Pa It was chartered with its present title in 1838 Classes have been graduated annually beginning in 1826 In 1838 a separate charter was granted without change of title since which time it has continued under the board of trustees For the class entering in 1954 the minimum entrance requirements will be three years of college work. The tuition fee averages $800 a year The registration for 1953-1954 was 666 graduates 163 The last session began for all classes on Sept. 14 1953 Classes ended for freshmen and sophomores on June 12, 1954 for juniors on June 5 1954 and for seniors on June 18 1954 Graduation was June 18 1954 The next session will begin for all classes on Sept. 13 1954 and will end for freshmen and sophomores on June 11 1955 for juniors on June 4 1955 and seniors on June 17 1955 The dean is George Allen Bennett, M D

Temple University School of Medicine, 3400 North Broad Street Zone 40—Organized in 1901 The first class graduated in 1904 Coeducational since organization Three years of collegiate work are required for admission The fees average $700 per academic year The registration for 1953 1954 was 516 graduates 132 The last session began Sept. 7 1953 and ended June 12, 1954 for freshmen, sophomores and juniors The senior class began Sept. 7 1953 and ended June 17 1954 The current session began Sept. 7 1954 and will end June 16 1955 The vice president and dean is William N Parkinson M D

University of Pennsylvania School of Medicine, Thirty Sixth and Pine Streets—Organized in 1765 Classes were graduated in 1768 and in all subsequent years except 1772 and 1775 1779 inclusive The original title was the Department of Medicine, College of Philadelphia The present title was adopted in 1909 It granted the first medical diploma issued in America In 1916 it took over the Medico Chirurgical College of Philadelphia to develop it as a graduate school Coeducational since 1914 Three years of collegiate work are required for admission The tuition fee is $850 with a deposit of $15 a general fee including student health of $70 and a matriculation fee of $5 The registration for 1953 1954 was 502, graduates 127 The last session began Sept 8, 1953, and ended June 12, 1954 The current session began Sept 7 1954, and will end June 11, 1955 The dean is John McK Mitchell, M D

Woman's Medical College of Pennsylvania 3300 Henry Avenue, Zone 29—Organized in 1850 Classes were graduated in 1852 and in all subsequent years except 1862 At least three years of collegiate work are required for admission and candidates with a degree are given preference The curriculum covers three years of 36 weeks each and one year of 40 weeks Total fees are $960 yearly The registration for 1953 1954 was 181, graduates 43 The last session began Aug 10 1953, for the fourth year, Sept 10 1953 for third year and Sept 14 1953 for first and second year The current session began Aug 2 1954 for the fourth year Sept 9, 1954, for second and third year and will begin Sept 13 1954, for first year and end June 11, 1955 The dean is Marion Fay, Ph D

Pittsburgh

University of Pittsburgh School of Medicine, 3941 O'Hara Street—Organized in 1886 as the Western Pennsylvania Medical College and in 1908 became an integral part of the University of Pittsburgh removing to the university campus in 1910 The first class graduated in 1887 Coeducational since 1899 Entrance requirements are three years of collegiate work The total fees are $700 each year The registration for 1953 1954 was 385, graduates 98 The last session began Sept 14 1953, and ended June 9, 1954 The next session will begin on Sept 13 1954, and will end June 15, 1955 The dean is William S McElroy, M D

SOUTH CAROLINA

Charleston

Medical College of South Carolina, 16 Lucas Street Zone 16—Organized 1823 The first class graduated in 1825 In 1832 a medical college bearing the title Medical College of the State of South Carolina was chartered and the two schools continued as separate institutions until they merged in 1838 Name changed by Act of General Assembly in February, 1952, to Medical College of South Carolina Classes were graduated in all years except 1862 to 1865, inclusive Coeducational from 1895 to 1912, when privileges for women were withdrawn, being restored in 1917 At least three years of collegiate work are required for admission The total fees average $432 each year for residents of South Carolina and $1,532 for nonresidents of the state The registration for 1953 1954 was 275, graduates 55 The last session began on Sept 24, 1953, and ended June 3, 1954 The current session began on Sept 9 1954, and will end June 2, 1955 The dean is John T Cuttino M D

TENNESSEE

Memphis

University of Tennessee College of Medicine, 847 Union Avenue, Zone 3—Organized in 1876, at Nashville as Nashville Medical College First class graduated in 1877, and a class graduated each subsequent year Became Medical Department of University of Tennessee in 1879 In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennessee This union was dissolved in 1911 The trustees of the University of Nashville by formal action of that board named the University of Tennessee College of Medicine as its legal successor In 1911 it moved to Memphis, where it united with the College of Physicians and Surgeons The Memphis Hospital Medical College was merged in 1913, Lincoln Memorial University Medical Department was merged in 1914 Coeducational since 1911 Three years of collegiate work are required for admission The B S degree is conferred on students completing the science medical curriculum of the university The fees are $450 for residents and $675 for nonresidents The registration for 1953-1954 was 750 graduates 159 During the next academic year the quarters begin September, January, March, and July The vice president and dean is O W Hyman, Ph D

Nashville

Meharry Medical College, Eighteenth Avenue North and Meharry Boulevard, Zone 8 (For Negro Youth)—Organized in 1876 as the Meharry Medical Department of Central Tennessee College, which became Walden University in 1900 First class graduated in 1877 Obtained new charter independent of Walden University in 1915 Coeducational since 1876 Three years of college work in a school of liberal arts are required for admission Tuition and fees are first year $630, second year $620, third year $610, fourth year $625 The curriculum covers four academic years of 34 weeks each In September, 1942, Meharry Medical College instituted the quarter system The registration for 1953-1954 was 257, graduates 63 The last session began on Sept 28, 1953, and ended on June 7, 1954 The next session begins Sept 27, 1954, and will end on June 6, 1955 The dean is Daniel T Rolfe, M D

Vanderbilt University School of Medicine, Twenty first Avenue South at Edgehill, Zone 5—The school was founded in 1874 The first class graduated in 1875 Coeducational since 1925 For matriculation students must be graduates of collegiate institutions of recognized standing or seniors *in absentia,* who will receive the bachelor's degree from their college after having completed successfully one year of work in the school of medicine The course covers four academic years, 3 of 9 months each and one of 10 months The fees average $810 per academic year The registration for 1953 1954 was 206, graduates 54 The last session began Sept 28, 1953, and ended June 6, 1954 The next session will begin Sept 27, 1954, and will end June 5, 1954 The dean is John B Youmans, M D

TEXAS

Dallas

Southwestern Medical School of the University of Texas, 2211 Oak Lawn—Organized in 1943 The first class graduated March 20, 1944 Coeducational since organization Became a branch of the University of Texas Sept 1, 1949 The medical school is operated on the regular program offering three terms of 12 weeks each per academic year The tuition fees for residents average $125 per year The nonresident fee is $375 per year Three years of college work are required for admission The registration for 1953-1954 was 394, graduates 98 The last session began Sept 9, 1953, and ended June 7 1954 The current session began Sept 8 1954 and will end June 10, 1954 The assistant dean and chairman of the executive committee is A J Gill M D

Galveston

University of Texas School of Medicine, 900 Strand Street—Organized in 1890 The first class graduated in 1892 Coeducational since organization Three years of collegiate training are required for admission The fees average $103 per academic year, including health fees for medical care and hospitalization The registration for 1953 1954 was 599, graduates 132 The last session began on Sept 15 1953, for freshmen, Sept. 21, 1953, for sophomores, and July 6 1953 for juniors and seniors all classes ended June 5 1954 The next freshman class will matriculate Sept 14, 1954, and the sophomore and junior classes will matriculate on Sept. 20, 1954, the seniors matriculated July 6, 1954, all classes will end June 4, 1955 The executive director is Chauncey D Leake, Ph D

Houston

Baylor University College of Medicine, Texas Medical Center—Organized in 1900 at Dallas as the University of Dallas Medical Department In 1903 it took its present name and became the Medical Department of Baylor University It acquired the charter of Dallas Medical College in 1904 The school was moved to Houston in 1943 Coeducational since organization The first class graduated in 1903 Entrance requirements are three years of collegiate work The course covers four years of eight months each The fees are respectively $790 $780 $780, $805 The registration for 1953-1954 was 358 graduates 86 The last session began Sept 14 1953 and ended May 31, 1954 The next session will begin Sept. 13, 1954 and will end May 30, 1955 The dean is Stanley W Olson, M.D

UTAH

Salt Lake City

University of Utah College of Medicine—Organized in 1905 Coeducational since organization Four year curriculum established March 1943 Three years of collegiate work are required for admission The next freshman class will be admitted in September 1954 All subsequent freshmen classes will begin in September of each year Classes are scheduled during three academic quarters (12 weeks) each calendar year Applications for admission (complete) must be submitted prior to October 31 preceding opening date The fees average $480 (resident), and $830 (non resident) The registration for 1953 1954 was 198, graduates 45 The next session for freshmen, sophomores, juniors and seniors will begin in September, 1954, and end in June, 1955 The dean is John Z. Bowers, M D

VERMONT

Burlington

University of Vermont College of Medicine, Pearl Street College Park.—Organized with complete course in 1822 Classes graduated in 1823 to 1836 inclusive when the school was suspended It was reorganized in 1853 and classes were graduated in 1954 and in all subsequent years. Coeducational since 1920 Three years of college work are required for admission For residents of Vermont the tuition fee averages $567 per session Nonresidents are charged an additional $433 each session Registration for 1953 1954 was 189, graduates 43 The last session for freshmen sophomores, and juniors began Sept 11, 1953, and ended for the freshmen and sophomores on June 13, 1954, for the juniors on Aug 28, 1954 The last senior class began June 29 1953 and graduated June 13 1954 The current session for all classes began Sept 10, 1954 and will end on June 12, 1955, for all except the juniors The junior year ends on Aug 27, 1955 The dean is George A Wolf Jr M D

VIRGINIA

Charlottesville

University of Virginia School of Medicine.—Organized in 1827 Classes were graduated in 1828 and in all subsequent years except 1865 Coeducational since the session of 1920 1921 Three years of college work are required for admission For residents of Virginia the tuition and other required fees are $465 per academic year for nonresidents $865 The registration for 1953 1954 was 292, graduates 70 The last session began Sept 20, 1953, and ended June 14 1954 The next session will begin Sept 19, 1954, and end June 13 1955 The dean is Thomas H Hunter, M D

Richmond

Medical College of Virginia, Twelfth and Broad Streets—Organized in 1838 as the Medical Department of Hampden-Sydney College Present title was taken in 1854 In 1913 the University College of Medicine was merged Coeducational since 1918 Classes were graduated in 1838 and in all subsequent years Three years of collegiate work as a minimum, are required for admission Preference however is given to applicants with a baccalaureate degree Fees average $563 per academic year Nonresidents are charged an additional $325 each year The registration for 1953-1954 was 372 graduates 100 The last session began Sept. 14 1953 for second, third and fourth year classes and ended June 1 1954 The last session for the first year class began Sept. 10 1953 and ended June 1 1954 The subsequent session began Sept. 9 1954 for the first year class and will begin Sept 13 1954 for the second third and fourth year classes and will end May 31 1955 The dean is John B Truslow M D

WASHINGTON

Seattle

University of Washington School of Medicine, Zone 5—Established by the legislature in 1945 and organized as one of the professional schools in the Division of Health Sciences of the University of Washington in 1946 The first class graduated in 1950 Coeducational The minimum requirement for admission is three years of collegiate work. Tuition fees are $390 each year for residents of Washington and Alaska and $585 for nonresidents of these areas. Registration for 1953 1954 was 287 graduates 68 Classes are limited to 75 Primary consideration is given to residents of Washington and Alaska, although a certain number of out of state applicants are accepted each year with preference to qualified students from neighboring states territories, and provinces where no medical school exists The last session began Sept. 21 1953 and ended June 12 1954 The next session will begin Sept. 29 1954 and will end June 11 1955 The dean is George N Aagaard M.D

WISCONSIN

Madison

University of Wisconsin Medical School, 418 North Randall Avenue.—Organized 1907 Gave only the first two years of medical course until 1925, when the clinical years were added Coeducational since organization The entrance requirement is three years of collegiate work. Fees for the first, second, and third years $340 for the fourth year $250 per academic year for residents An additional fee of $320 per year is charged nonresidents Registration for 1953-1954 was 318 graduates 79 The last session for freshman sophomore, and junior students began Sept. 21 1953 and ended June 14 1954 The last senior class began June 29 1953 and ended June 18 1954 The next freshman, sophomore and junior classes will begin Sept. 20 1954 and will end June 14 1955 The senior class began June 28 1954 and will end June 17 1955 The dean is William S Middleton M.D

Milwaukee

Marquette University School of Medicine, 561 North Fifteenth Street, Zone 3—Organized in December 1912, by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons Coeducational since organization. Three years of collegiate work are required for admission The fees are $850 per academic year The registration for the 1953-1954 session was 391 graduates 95. The last session began Sept. 14 1953 and ended June 4 1954 The last senior class began June 8 1953 and ended June 5 1954 The next session for freshman, sophomore and junior students will begin Sept. 13 1954 and will end June 6 1955 The 1954-1955 session for seniors began on June 7 1954 and will end June 3 1955 The dean is John S Hirschboeck, M.D

PUERTO RICO

San Juan

University of Puerto Rico School of Medicine, Ponce de León Avenue—Organized in 1949 the first class entered in August, 1950 and graduated June 1 1954 It evolved from the School of Tropical Medicine Coeducational since organization Three years of collegiate work are required for admission Annual fees amount to $539 The registration for 1953-1954 was 184 graduates 45 The last session began Aug. 17 1953 and ended May 21 1954 The current session began Aug. 16 1954 and will end May 20 1955 The dean is E Harold Hinman M.D

APPROVED MEDICAL SCHOOLS IN CANADA

ALBERTA

University of Alberta Faculty of Medicine Edmonton.—Organized in 1913 Coeducational since organization Has given complete medical course since 1924 Three years of college work are required for admission Tuition for first year is $300 per session for second year $450 per session and *for third and fourth years $500 per session. The registration for 1953-1954* was 236 graduates 61 The last session began Sept 1 1953 and ended April 30 1954 The current session began Sept. 7 1954 and will end April 30 1955 The dean is John W Scott, M.D

BRITISH COLUMBIA

University of British Columbia Faculty of Medicine Vancouver—Organized in 1949 Coeducational First class graduated in 1954 Three years of arts required for matriculation The regular medical course extends through four years and leads to the M D degree. The first two years of the course are taught almost entirely on the university campus the third and fourth years are taught at the Vancouver General Hospital and other affiliated institutions including Shaughnessy Hospital St. Paul s Hospital Children s Hospital Grace Hospital the Provincial Mental Hospital and the Western Society for Rehabilitation The fees are $455 yearly for both residents and nonresidents The registration for 1953 1954 was 233 graduates 54 The last session began Sept. 7 1953 and ended May 15 1954 The current session for all classes began on Sept. 8 1954 and will end May 14 1955 The dean is Myron M Weaver M.D

MANITOBA

University of Manitoba Faculty of Medicine Bannatyne Avenue Winnipeg—Organized in 1883 as Manitoba Medical College First class graduated in 1886 and a class graduated each subsequent year The college transferred all its property to the University of Manitoba in 1919 and assumed the present title Coeducational since organization Matriculation requirements include three years of college work in the faculty of arts and sciences of a recognized university The course extends over four years of eight months each and a hospital internship The fees average $450 yearly The registration for 1953 1954 was 267 graduates 58 The last session began Sept. 14 1953 and ended on May 22, 1953 The next session will begin on Sept. 13 1954 and will end on May 21 1955 The dean is Lennox G Bell M D

NOVA SCOTIA

Dalhousie University Faculty of Medicine University Avenue Halifax.—Organized in 1867 Incorporated as the Halifax Medical College in 1875 Reorganized as an examining faculty separate from the Halifax Medical College in 1885 In 1911 in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College the work of the latter institution was discontinued and a full teaching faculty was established by the university First class graduated in 1872. Coeducational since 1871. Requires for matriculation two years of arts increasing with the medical class entering in 1956 to three years The new ruling will thus apply to students starting their premedical work in 1954 The regular medical course covers four years and a hospital internship of one year approved by the medical faculty The fees average $440 yearly nonresidents $250 additional fee The last session for freshmen sophomores juniors and seniors began Sept 8 1953 and for internes May 3 1953 all classes ended May 11 1954 The registration for 1953 1954 was 212 graduates 53 The present session for internes began May 3 1954 and for the first four years Sept. 7 1954 and will end May 17 1955 The dean is C B Stewart, M B

ONTARIO

Queen's University Faculty of Medicine Kingston.—Organized in 1854 First class graduated in 1855 and a class graduated each subsequent year The course consists of six sessions of 32 teaching weeks the sixth session being devoted entirely to clinical work in the hospitals affiliated with the university The latter is not considered an internship Fees for each of six years amount to $469.80 The degrees awarded are M.D., C.M Freshmen will be admitted annually Registration for 1953-1954 was 359 graduates 53 The last session began Sept. 14 1953 and ended May 12, 1954 The next session will begin Sept. 20 1954 and will end May 7 1955 The last *convocation was held June 5 1954 The dean is G Harold Ettinger* M D

University of Ottawa Faculty of Medicine Ottawa.—Organized in September 1945 The degree of M D is conferred after one year premedical studies four years medicine and one year of internship The minimum academic requirements for admission to the premedical year are the Ontario grade 13 honour matriculation or equivalent certificates Students who have obtained their bachelor degree in arts or in science and who have completed the required courses in biology chemistry and physics may be admitted to the first year of medicine The registration for 1953 1954 in the medical and premedical years was 248 graduates 47 The current session for the premedical year began on Sept. 9 1954 and for first, second third and fourth medical years on Sept. 7 1954 *Internship is from May 1 to April 30* The session for the premedical year will end in May 1955 for first second, and third medical years in June 1955 and the fourth medical year in April 1955 Students graduate in the first week of June The dean is A. L. Richard M D

University of Western Ontario Faculty of Medicine, 346 South Street London—Organized in 1881 as the Western University Faculty of Medicine. First class graduated in 1883 and a class graduated each subsequent year Present title in 1923 The Faculty of Medicine has been under the control of the Board of Governors of the University of Western Ontario since 1913 Coeducational since 1913 The normal course of study covers two honor college years of nine months each and four years of nine months each in the Faculty of Medicine The total fees for the last four years are $550 a year The registration for 1953-1954 was 237 graduates 61 The last session began Sept. 14 1953 and ended May 26 1954 The next session will begin Sept. 13 1954 and end May 25 1955 The dean is J B Collip M.D

University of Toronto Faculty of Medicine University Grounds, Zone 5 Toronto—Founded in 1843 as the Medical Faculty of King s College Discontinued in 1853 Reestablished in 1887 In 1902 Victoria University

Medical Department and in 1903 the Medical Faculty of Trinity University became affiliated Coeducational since 1903 The degree of M D is conferred after four years in the study of medicine Students are admitted to the medical course following grade 13 examinations of the province of Ontario and after two years in the study of premedical requisites in the University of Toronto A limited number of students, who have a degree in arts from a recognized university and who have covered the necessary work in the humanities and sciences may be admitted to the first medical year The B Sc (Med) degree may be conferred for special work or investigation as a graduate degree or under certain circumstances for an extra year's work as an undergraduate The registration for 1953 1954 in the medical and premedical years was 851, graduates 166 The next session for first and second premedical years will begin on Sept 22, 1954 and for first second third and fourth medical years on Sept 20, 1954 The session for premedical years will end on April 30, 1955 and for medical years on May 14 1955 Students will graduate annually in June The dean is J A MacFarlane M B

QUEBEC

McGill University Faculty of Medicine, 3640 University Street Montreal —Founded in 1823 as Montreal Medical Institution became the Medical Faculty of McGill University in 1829 first class graduated under the university auspices in 1833 No session between 1836-1839 owing to political troubles In 1905 it absorbed the Faculty of Medicine of the University of Bishop's College Coeducational since 1917 Three years of collegiate work are required for admission The total fees for each of the four medical years are $593 The registration for 1953 1954 was 440 graduates 110 The last session began Sept 9, 1953, and ended June 5 1954 for the first three classes and May 1, 1954 for the senior class The current session began Sept 8, 1954 and will end June 4, 1955 for the first three classes and April 30, 1954, for the seniors The dean is G Lyman Duff, M D

University of Montreal Faculty of Medicine, 2900 Mount Royal Boulevard, Montreal —Organized in 1843 as the Montreal School of Medicine and Surgery In 1891 by Act of Parliament, was merged with the Faculty of Medicine of Laval University at Montreal (organized in 1878) Present name by Act of Parliament in 1920 A class was graduated in 1843 and each subsequent year Coeducational since 1925 The requirements for admission are B A degree or its equivalent, with a supplementary year in the Faculty of Pure Science or an entrance examination on the premedical subjects An internship is required for graduation The fees are $390 yearly for residents, and $465 yearly for nonresidents The registration for 1953-1954 was 423, graduates 99 The last session began Sept 11, 1953, and ended May 28, 1954 The next session will begin Sept 14, 1954, and will end May 27, 1955 The dean is Wilbrod Bonin M D

Laval University Faculty of Medicine, Quebec —The Quebec School of Medicine organized in 1848, became in 1852 the Laval University Faculty of Medicine, first class graduated in 1855, and a class graduated each subsequent year The premedical requirement is a B A degree The medical course is six years in length including a one year internship in affiliated teaching hospitals The first year (premedical) may be avoided by a special examination The fees for each of the medical years average $400 for residents of Canada Nonresidents are charged an extra fee of $200 each year The registration for 1953-1954 was 599 graduates 134 The last session began Sept 9 1953 and ended June 1, 1954 The current session began Sept 8, 1954 and will end June 1, 1955 The dean is Charles Vézina, M D

APPROVED SCHOOLS OF THE BASIC MEDICAL SCIENCES IN THE UNITED STATES

MISSISSIPPI

University

University of Mississippi School of Medicine —Organized in 1903 Coeducational since organization A clinical department was established at Vicksburg in 1908 but was discontinued in 1910 after graduating one class Entrance requirement is three years of collegiate work Fees average $410 50 annually There is a nonresident additional fee of $200 The school operates on an accelerated program by accepting two freshman classes each session Registration for 1953 1954 was 113 Approximately 28 students will register Aug 2, 1954 The last session for freshmen began July 13 1953, and ended May 1 1954 An additional freshman class was admitted Feb 1, 1954, and will end Oct 16 1954 The sophomore session began May 24, 1954 and will end Jan 29 1955 An additional sophomore session will begin Nov 8, 1954, and will end July 16 1955 The dean is David S Pankratz M D

MISSOURI

Columbia

University of Missouri School of Medicine —Organized at St Louis in 1845, was discontinued in 1855 but was reorganized at Columbia in 1872 Teaching of the clinical years was suspended in 1909 Coeducational since 1872 The entrance requirement is three years of collegiate work The B S degree in medicine is conferred at the end of the second year Total fees for the first year are $284 for the second year $270 The registration for 1953-1954 was 85 The last session began Sept 15 1953, and ended June 12, 1954 The next session will begin Sept 13, 1954, and will end June 8, 1955 The dean is Roscoe L Pullen M D

NEW HAMPSHIRE

Hanover

Dartmouth Medical School —Organized by Dr Nathan Smith in 1797 The first class graduated in 1798 It is under the control of the trustees of Dartmouth College Courses of the third and fourth years were discontinued in 1914 Three years of college work and candidacy for the bachelor's degree are required for admission Candidates for the A B degree in Dartmouth College may substitute the work of the first year in medicine for that of the senior year The tuition is $800 for each year The registration for 1953-1954 was 46 The last session began on Sept 20 1953 and ended June 13 1954 The next session will begin Sept 19, 1954, and will end June 12, 1955 The dean is Rolf C Syvertsen, M D

NORTH DAKOTA

Grand Forks

University of North Dakota School of Medicine —Organized in 1905 Offers only the first two years of the medical course Coeducational since organization Three years work in a college of liberal arts are required for admission The B S degree in combined arts medical course is conferred at the end of the second year The fees are $138 each year for resident students and $223 for nonresidents The registration for 1953 1954 was 70 The last session began Sept 18 1953 and ended June 5 1954 The current session began Sept 1 1954, and will end May 26, 1955 The dean is Theodore H Harwood, M D

SOUTH DAKOTA

Vermillion

University of South Dakota School of Medical Sciences —Organized in 1907 as the University of South Dakota School of Medicine Present title in 1937 Coeducational since organization Offers only the first two years of medical course Three years work in a college of liberal arts are required for admission Students who complete the third year of premedical work in the College of Arts and Sciences at the University of South Dakota may apply the work of the first year of medicine to an A B degree, the B S degree is conferred at the end of the second year on those students who do not hold a combination (Arts and Sciences and Medicine course) A B degree The tuition is $270 for first year residents and $360 for second year residents $480 for first year nonresidents and $570 for second year nonresidents Registration for 1953 1954 was 63 The last session began Sept 1, 1953 and ended June 7 1954 The current session for first and second year students commenced Aug 30 1954 and will end June 6, 1955 Following the didactic work in the second year the sophomores are assigned to a general practitioner to serve on a one month preceptorship program The dean is W L Hard, Ph D

WEST VIRGINIA

Morgantown

West Virginia University School of Medicine —Organized in 1912 Gives the first two years of the medical course but agreement has been made for the transfer of 25 students each year to the Medical College of Virginia Coeducational since organization Entrance requirements are three years of collegiate work The B S degree is conferred at the end of the second year Fees for residents of the state are respectively $258 and $268, nonresidents $442 additional each year The registration for 1953 1954 was 61 The last session began Sept 14 1953, and ended May 31, 1954 The next session will begin Sept 13 1954 and will end May 30, 1955 The dean is Edward J Van Liere, M D

APPROVED SCHOOL OF THE BASIC MEDICAL SCIENCES IN CANADA

SASKATCHEWAN

University of Saskatchewan College of Medicine, *Saskatoon* —Organized in 1926 Coeducational Will offer a full medical course first graduates 1957 Two years of university work after senior matriculation is required for admission The B A degree is conferred at the end of the second year The fees are $390 50 The registration for 1953 1954 was 65 The last session began Sept 23, and ended June 19 The next session will begin Sept. 22, 1954, and will end June 18, 1955 The dean is J Wendell Macleod, M D

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PROGRESS IN MEDICAL EDUCATION

This issue of THE JOURNAL includes the 54th Annual Report on Medical Education in the United States and Canada prepared by the Council on Medical Education and Hospitals of the American Medical Association and developed to inform the profession and the public of the current status, development, and trends in this important area of education Evaluation of the annual reports of activities and statistics, as submitted by the medical schools, indicates that the past year has been one of steady progress and that the period immediately ahead holds promise of continuous growth and advance in the field of medical education and in the interest of the general public welfare

The past year has witnessed completion of the basic organization of faculty and four year curriculums with the graduation of their first class of physicians in three medical schools the University of North Carolina, the University of Puerto Rico, and the University of British Columbia Thus there are now 74 approved four year medical schools, 6 schools of basic medical science in the United States, and 11 approved four year medical schools and one school of basic medical science in Canada Currently, eight other new four year schools of medicine are in process of actual development, and two other developmental programs may be added during the course of the next year The University of California at Los Angeles will graduate its first class in 1955, Miami in 1956, and, if current developments proceed on schedule, Mississippi and Missouri in 1957 The University of Florida, West Virginia, Albert Einstein, and Seton Hall medical schools will follow closely The University of Kentucky will seek funds from the next legislature to establish a four year school, and the North Dakota legislature has passed legislation that will extend their current basic medical science school into a full four year medical school program Medical school enrollments have steadily increased over the past 20 years as existing schools have augmented their faculties and facilities and new schools have been developed This, together with the currently developing programs and those now under advisement, assures the continued steady increase of undergraduate medical students and larger numbers of graduates annually for many years ahead Proportionately, the rise in the number of medical graduates should, therefore, be relatively more rapid than general population increase in the course of the next 6 to 10 years

In line with the increased enrollments and larger graduating classes is the fact that attrition rates in medical schools are much lower than was the case some years ago This is a direct reflection of the interest and care and improved student counseling and advisement that medical schools have exercised in the selection of students in an effort to reduce the wastage that earlier accompanied less careful evaluation of the potentialities of entering students

The rapid advances in knowledge during recent years have so changed diagnostic techniques and therapeutic approaches that schools have been constantly challenged to reevaluate their teaching programs and to revise curriculums and teaching methods in keeping with these dynamic developments Intellectual ferment prevades the field of medical education, and interesting experimental programs devised to improve undergraduate, graduate, and postgraduate opportunities in this field are being conducted on a wide scale The intercommunication so effectively initiated through the conferences and institutes in such fields as psychiatry, public health, and preventive medicine, and the annual teaching institutes started by the Association of American Medical Colleges in 1953 have been potent factors in accelerating curriculum reevaluation and stimulating experiments in medical education

New emphasis on the patient as a person, with the focus on man in his environment, has become the nucleus of many of these new experimental approaches This is reflected in the efforts to reduce departmental barriers and improve integration and correlation of many areas of teaching too frequently rigidly departmentalized in the past through reduction of didactic teaching, strengthening of clinical clerkships, better organization and utilization of the potentialities of outpatient clinic teaching, home study and hospital extension programs and preceptorships, and over-all improvement in supervision of such programs

There has also been improvement in medical school financing This has been especially notable in the field of outside support for research and certain special areas of teaching In their efforts to improve opportunities in medical education, to adequately support existing faculty personnel, and to introduce new departments, sections, or divisions in keeping with advancing knowledge, medical schools will face a continuing need for more adequate financing as they endeavor to serve the public in the education of the physician of tomorrow and continue to search for new knowledge essential to further improvement in medical care This is a challenge that the public must understand and share so as to assure the continuation of the high standards of professional care and medical education that characterize American medicine

The American public, the medical profession, and the medical schools have every right to take genuine pride in the tremendous advances that have been made in medical education during the course of the past half century The American public should be deeply conscious of the high quality of medical care to which it is privileged This high quality of medical care can be available only through the education of medical personnel fully informed and prepared to meet the constant challenges that confront them in this rapidly changing and dynamic era in which they live and work today As Whitehead[1] has indicated, in education imagination is a contagious disease It cannot be measured by the yard or weighed by the pound and then delivered to the students by members of the faculty It can be communicated only by a faculty whose members themselves wear their learning with imagination Thus, in maintaining the high objectives of the best possible medical care, medical education is constantly confronted with the need for imaginative planning that can guarantee for the period ahead advances of the same order of magnitude that have been accomplished during the first half of the 20th century

OBJECTIVES IN OUTPATIENT TEACHING

During recent years the new diagnostic techniques and new therapeutic agents and procedures have made it possible to treat many patients in outpatient departments who, prior to these developments, occupied hospital ward beds With increasing numbers of ambulatory patients cared for in outpatient clinics, this aspect of medical care assumes ever greater importance Numerous medical educators have long felt that there was room for improvement in the care of such ambulatory patients and have recognized the favorable position of the outpatient clinic as a learning experience for the medical student

In the past many teachers in the clinical fields have preferred teaching in the hospital wards because of their superior organization, better continuity of immediate "follow-through" teaching, and what appeared to be a greater educational challenge The rapid increase in the number and importance of the various medical specialties over the past half century has resulted in outpatient teaching schedules in which the student spent a few weeks in medicine, a similar period in surgery, then a shorter period in pediatrics and obstetrics, after which he passed in rapid succession through such specialties as neurology, psychiatry, dermatology, orthopedics, urology, ophthalmology, and otolaryngology This kaleidoscopic experience lacked continuity of patient care throughout any given illness or complaint and consequently tended to fail in many instances to develop in the student a sense of responsibility for patients as persons

At the University of Oklahoma, the University of Pennsylvania, Boston University, Cornell, and other institutions, student assignments to outpatient clinic experiences are being radically modified to permit more adequate continuity of "follow-through" between students and their patients In one of these programs, although the student works day-by-day on a given service such as medicine or surgery, this outpatient assignment is merely for the purpose of maintaining a proper balance in his experience and in the assignment of new patients Once the initial contact has been made between the patient and his student physician, the latter follows the patient throughout his full cycle of illness regardless of what special diagnostic procedures or treatment may be required In another institution the traditional "block system" of fourth year outpatient assignment has been abolished and replaced by an assignment concurrently to all outpatient departments This program has also allowed the continuity of patient-student relationship throughout the entire outpatient experience

Wherever this type of program has been carefully planned and adequately supervised, both faculty and students have been enthusiastic over the results After a single year of experience one faculty group indicated that they are firmly convinced that the concept is basically sound from both medical care and educational aspects There is no question that the potentialities of outpatient teaching have been greatly enhanced in recent years On the other hand, these opportunities can be only as good as the planning, personnel, and supervision that underlie this development and wherever initiated deserve the overall study and implementation that will make it possible to realize their maximum potentialties in medical care and medical education

PREPARATION FOR GENERAL PRACTICE

There has long been a widespread recognition that completion of medical school work does not in itself constitute sufficient preparation for the practice of medicine Perhaps the most noteworthy evidence of this fact is illustrated by the unanimous action of the graduates of 1952-1953, none of whom went into practice without further formal training

Although in the past it has been customary for physicians to enter general practice after one year of internship, there is a growing realization that this no longer represents adequate preparation Medical students interested in devoting their lives to the general practice of medicine and medical school faculties have both expressed this realization Many physicians now in general practice concur in this observation, and the educational requirements necessary for continued membership in the American Academy of General Practice are at least an indirect acknowledgment of this need by an organized group of thoughtful participants in this field of medical practice

In previous years, many medical schools stated as the major objective of their undergraduate teaching programs the preparation of students for the general practice of medicine Currently, however, most medical faculties embrace as the major objective of undergraduate medical education the provision of a solid framework of fundamental principles applicable to all areas of medicine This implies that the student must build on this framework through further training after graduation the additional appurtenances necessary for sound practice in whatever field he chooses for his career

Career decisions are made, for the most part, during the medical school or internship period An intelligent selection of any career is difficult without some knowledge of what it constitutes Until recently medical students and most interns came in contact with only the medical specialist Now, through preceptorship programs, general practice outpatient teaching clinics, and home care programs, more and more students are afforded an opportunity for intimate association with physicians in general practice Armed with a better understanding of the specialist and the physicians in general practice through association with both groups and their patients, a wiser choice of a future career should be possible

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[1] Whitehead, A N The Aims of Education, and Other Essays, New York, the Macmillan Company, 1929

Inculcation of sound principles and attitudes is indeed a major task to accomplish during four years in medical school Most would agree that, if this is accomplished, the medical schools have rendered a great service, however, the total educational needs of the students imply the requirement of a further educational program to provide opportunity for more detailed knowledge Medical schools have long accepted this necessary graduate teaching area in the medical specialties as part of their responsibility but have not felt an equal responsibility in the field of general practice

The educational demands of students preparing for the special fields of medicine have undoubtedly contributed to the willingness of the medical schools to supply this demand It is heartening to note that, as students interested in general medical practice have evinced a desire for training beyond the internship, there has also developed in medical schools a desire to meet this new demand Several programs for graduate training in general practice have already been established by medical school faculties in their associated hospitals In general, it is felt that these programs are successful, although it is doubtful if any of the participating institutions feel that all major problems have been resolved

The demands of students in the specialty fields of medicine ultimately contributed to the establishment of specified training programs and standards of practice in those fields There are many difficult obstacles to the similar development of specified graduate training programs and standards of practice in the field of general medicine Much could be said in favor of such a development, and recent occurrences could conceivably be logical precursors to such a step

TEACHING LEGAL MEDICINE IN MEDICAL SCHOOLS

Because of the fact that in the practice of medicine no physician can avoid contact with the law, it is important that medical students have basic instruction in regard to their legal duties to patients, their communities, and their government by the time they receive their professional degrees Furthermore, they should also possess sound basic knowledge of the pathology of trauma

On the basis of an analysis made in 1952[1] of what is being taught in the field of legal medicine, a Committee on Medicolegal Problems of the American Medical Association obtained information suggesting the need for additional emphasis on this field in some institutions At that time 15 schools had departments of legal medicine and 7 schools offered elective courses only Of the remaining institutions, 6 schools offered electives in addition to the required basic course in legal medicine, 5 offered comprehensive graduate courses, 16 presented undergraduate instruction that on the basis of current standards appeared to be satisfactory, and 23 presented definitive or organized instruction in medical jurisprudence alone Twenty of the schools described additional courses other than in medical jurisprudence that appeared to be insufficient from the point of view of adequate instruction in legal medicine

Rapid advances in knowledge and its application to medical care have presented medical educators with increasingly difficult problems in curriculum planning Every curriculum committee is confronted with the question of what can be logically modified or deleted as well as what might be added to achieve a program to meet current needs Reasonable indoctrination in the fundamentals of legal medicine would appear to be essential for all medical students The committee referred to has prepared a suggested basic course of 20 hours for fourth year students that should amply cover the need if carefully planned and adequately taught The program merits serious thought on the part of curriculum committees considering this area of their undergraduate programs

DEVELOPING PROFESSIONAL ETHICS

There is no doubt but that in this difficult period of world turmoil, with its political and social upheaval, there is need for reemphasis on moral and ethical values in all areas of human endeavor It is comparatively easy to outline the basic principles of ethics in the profession of medicine or, for that matter, in any field of activity where there is general agreement on the fundamentals of correct conduct, however, the development of proper ethical concepts and conduct within the individual demands far more than lectures or the mere reading or discussion of principles Concepts of right and wrong are developed from early childhood on through preprofessional training Nevertheless, students learn the application of the ethical principles of their profession from the precept and example of their teachers and practitioners of their profession with whom they come in contact during the formative years of training and early professional life

One of the great modern philosophers[1] tells us that the early Greeks believed that there were two principles of conduct. One of these was represented by the laws of the state forbidding an individual to do certain things and ordering him to do others Aside from these laws, they believed in what was considered to be an even more important principle of conduct. This involved the individual as an agent free to do as he chose This important principle of conduct, however, had a master, or what might be roughly translated as a conscience, a sense of things that are not done, an understanding of the things a man feels inconsistent with his self-respect or his honor and consequently will not engage in, although there is no one to prevent him from doing so Thus, aside from the learning of ethics through various educational mediums and personal contacts, there is also a question of character development guided by this second ancient principle of conduct No more searching question can be asked about a people or about a man, nothing throws more light on character, than observing the role of this great second principle, or conscience, in regard to what it allows to be done and what it forbids Education in all areas of human endeavor today can well afford to plan the inclusion of greater emphasis on moral and ethical values It is no idle Ivory Tower fantasy to include emphasis on them in the curriculum

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[1] Regan L. J., and others A Suggested Course in Legal Medicine for Medical Schools J A M A 150 716 (Oct. 18) 1952.

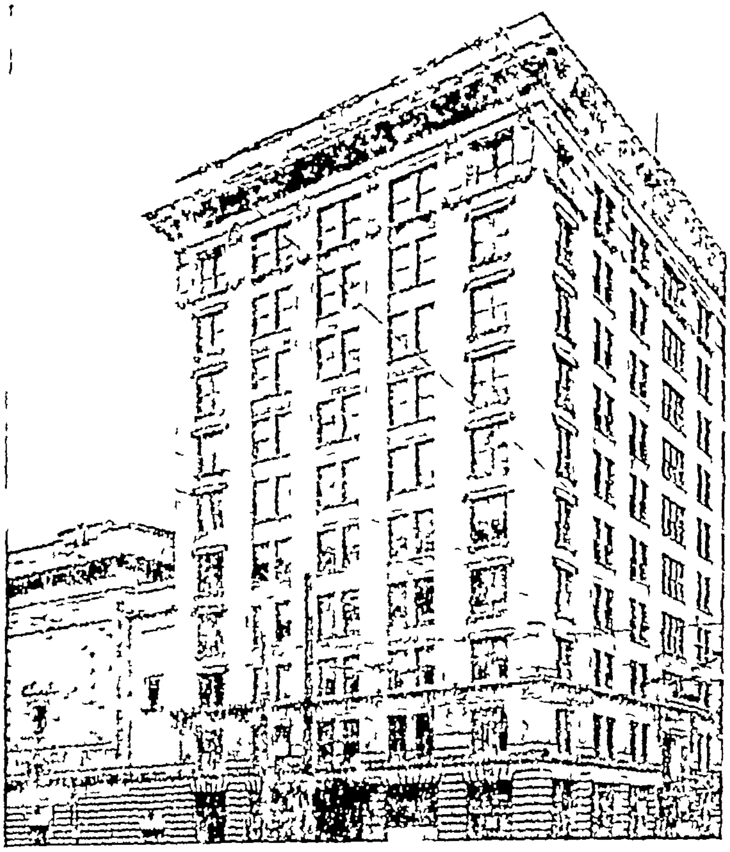
[1] Livingstone Sir R. W Education and the Spirit of the Age London Oxford University Press 1952.

ORGANIZATION SECTION

OHIO STATE MEDICAL ASSOCIATION

To permit readers of THE JOURNAL *to become better acquainted with the activities of state medical associations, articles describing them will appear from time to time in these pages* —ED

According to the medical archives of Ohio, on May 14, 1846 "a number of medical gentlemen," 25 in all assembled at the Neil House in Columbus, adopted a constitution, and organized the Ohio State Medical Society, now the Ohio State Medical Association In 1846, the situation in Ohio with respect to medicine was anything but bright and hopeful The state was overrun with quacks charlatans, and poorly prepared physicians Attempts to control this situation during the previous decade had failed Confronted with this crisis, the group of 25 physicians, holding degrees from recognized medical schools of the time, met to form an organization for fostering legislation to safeguard the public against knavery and ignorance and to initiate activities to elevate the standards of the profession in Ohio Before 1846 there had been no real medical organization in Ohio A legislative enactment in 1811 created five medical districts, with local boards of censors, to license physicians to practice The law was repealed in 1812 and a substitute enacted, increasing the districts to seven and creating a meaningless state medical society Amended many times, the act was finally repealed in 1833 It was not until 1868 that the state again took steps to regulate the healing arts by law The law of 1868 was basically weak In 1896, the state enacted an adequate examining and licensing law That law carried many of the basic provisions found in the present Ohio Medical Practice Act The society, officially chartered by the state in 1848, became on May 6, 1904, the Ohio State Medical Association, when it was incorporated as a nonprofit corporation under state law



The Hartman Theater Building in Columbus, in which the Ohio State Medical Association has its headquarters

Much of the time of the society during its infancy was devoted to studying the needs of the state for facilities for institutional care Frequently the members met in Columbus when the legislature was in session Often they adjourned to the State House where leading physicians, including Daniel Drake and William Awl, would address the combined houses of the assembly on health and medical matters Until 1902, the state society was composed of a mixture of county medical societies and district societies That year the constitution was changed to conform with that of the American Medical Association, to read "Component societies shall consist of those county medical societies which hold charters from this association " Thus ended the district society as a basis of local organization However, later the word "district" returned to use as a basis for membership on the Council, the interim governing body of the Ohio State Medical Association

The Ohio State Medical Journal, the first issue of which appeared in July, 1905, was published under the supervision of a publications committee until 1936, when the present editor, Dr Jonathan Forman was appointed Under Dr Forman's guidance the journal has emphasized organization activities, published clinical papers of practical value, kept members informed of current legislative activities and economic-social developments affecting medicine, and devoted considerable attention to medical history The position of news editor and managing editor for the journal was established in 1913 George V Sheridan, who had served as a legislative representative of the association, was appointed and served under Dr J H J Upham, then chairman of the publications committee, who later became president of the state association and President of the A M A

On Oct 25, 1915, Mr Sheridan was named to the newly created position of executive secretary, and a headquarters office was established in Columbus, where now the executive offices occupy the major part of the 10th floor of the Hartman Theater Building Here are employed the executive secretary, Charles S Nelson, George H Saville, the assistant executive secretary, who also holds the position of director of public relations, an assistant director of public relations, who serves also as secretary of the rural health and the school health committees, an assistant managing editor and assistant business manager, a membership secretary, the editor of the journal (part time), and a stenographic and clerical staff of 10 In addition to the monthly journal, the association publishes a monthly newsletter known as *OSMAgram* Through its department of public relations, the association provides speakers and exhibits for lay gatherings, distributes specially prepared literature to the public, furnishes articles and editorial suggestions to the press, cooperates with radio and television stations on medical and health programs, and supplies professional advice and guidance to official and voluntary agencies and organizations participating in medical and health activities It maintains a bureau that supplies speakers for county and district society meetings and for meetings of civic groups and an active Physicians' Placement Service to assist areas needing physicians and to help physicians secure a location in Ohio The committee on rural health, which administers a rural medical scholarship plan to interest rural young people in the practice of medicine, presents each year a lecture series on the general practice of medicine in small areas before the senior class at the Ohio State University College of Medicine in Columbus The association's committee on school health has adopted policies with regard to physician participation in school health It has published guides for school emergency service and cooperates in projects to intensify teamwork among physicians, educators, and health departments in the local community for better school health In a "Guidepost to Services," distributed to all members, the association describes many personalized and special services for members in the field of workmen's compensation, medical care for veterans and for the aged, tax matters, legal opinions on medical and health subjects, matters relating to narcotics, reference material, data on physicians, hospitals, institutions, and welfare agencies, placement service, welfare programs, problems in ethics or professional relations, and the medical phases of suits for alleged malpractice

The association has grown from its original membership of 25 to more than 8,000 Each of the 88 counties of the state has a chartered county medical society The officers of the state medical association are Dr Merrill D Prugh, Dayton, president, Dr David W Heusinkveld, Cincinnati, president-elect, Dr Richard L Meiling, Columbus, treasurer

COUNCIL ON RURAL HEALTH

This is one of a series of brief statements explaining the work of various departments of the American Medical Association —ED

The Council on Rural Health was organized in 1945 when Mrs Charles W Sewell of the American Farm Bureau Federation interested Dr F S Crockett in the problem of the shortage of physicians in rural areas Dr Crockett presented the problem to the American Medical Association and a committee was formed It became a council in October, 1951 Though organized primarily to try to interest more physicians in rural practice, the larger purpose of the Council has come to be consideration of all problems of rural health in America The Council furnishes guidance and materials to 45 state society rural health committees on ways and means for improving rural health It sponsors an annual national conference on the subject, which serves both to inspire and educate the attending physicians and agricultural leaders When it first decided to sponsor a national Conference on Rural Health, the Council members felt that they should contact leaders of farm organizations to determine what kind of program they wanted Accordingly, an advisory committee was set up On it were representatives of the Grange, the American Farm Bureau Federation, the Milk Producers Federation, and the Extension Services of the Land Grant Colleges Its recommendations proved so valuable that the advisory committee became a permanent institution It has continued to assist the A M A, not only with its succeeding conferences but with all aspects of its rural health programs Today the committee is composed of 11 representatives from farm groups and the rural press

The Council does not operate health programs It believes in helping communities help themselves It attempts, therefore, to activate communities, to provide them with information on how to achieve their aims and to coordinate the activities of farm organizations and physicians so that they work together as a rural health improvement team

Early in 1952 a field director was employed by the Council on a permanent basis to gain firsthand information on the soundness and effectiveness of its program, to point out what needs to be done in each state and suggest solutions to problems The program for improving rural health promoted by the Council stresses state and public health services, the Hill Burton Hospital Construction Act, rural scholarships, agricultural school extension services, parent-teacher associations, voluntary health agencies voluntary prepaid medical and hospital care plans, indigent medical care plans state and county health councils health education programs and the encouragement of self-help programs Through development of health councils and effective programs for improving rural health the Council renders its most valuable service The national conference has increased steadily in size and now is attended by about 600 representatives of the medical profession voluntary health groups farm organizations, state rural health committees, educators, and others

CONFERENCE ON MENTAL HEALTH

The American Medical Association Committee on Mental Health will sponsor a meeting for mental health representatives of state medical associations at headquarters in Chicago Sept 17-18 to discuss methods of gaining a more effective integration of techniques of psychiatry with general medical practice and the mental health programs by which constituent medical associations can achieve this objective It is planned that each of the state medical associations will be represented by an official of their present committee on mental health and at least one or more others of their leaders who are experienced in activities and policies of their respective organizations The agenda for the meeting includes a welcoming address by Dr Elmer Hess, Erie, Pa, President-Elect of the A M A to be followed by a statement of purposes by Dr Leo H Bartemeier, Detroit, Chairman A M A Committee on Mental Health Mental health programs of the state medical associations of Virginia, Texas and Connecticut will be presented by their respective committee chairmen, Drs David C Wilson, Charlottesville, Va, Hamilton F Ford, Galveston, Texas, and Clifford D Moore Stanford, Conn, each presentation being followed by open discussion by all the delegates Dr Winfred Overholser, superintendent of Saint Elizabeths Hospital, Washington, D C, will be the guest speaker at a dinner meeting (courtesy of the Association) Friday evening at the Drake Hotel

The program Saturday morning will include presentations by Dr Walter E Barton, Boston, chairman of the American Psychiatric Association s ad hoc committee for liaison with the American Medical Association, Dr Marvin A Block, Buffalo, chairman of the A M A Subcommittee on Alcoholism Mr Sidney Spector, director, Inter-State Clearing House on Mental Health of the Council of State Governments, Mrs George Turner President of the Woman s Auxiliary to the A M A, and Dr David Price assistant surgeon general of the U S P H S, representing the National Institute of Mental Health, Bethesda, Md

NEW RADIO SERIES ON MEDICINE

Five more platters for radio broadcasting in the Help Yourself to Health Series" are ready for shipment to local medical societies by the A M A Bureau of Health Education The five 15 minute shows complete the series of 13 that were produced by the Rocky Mountain Radio Council and based on presentations made at A M A Rural Health Conferences The five new recordings are entitled Rural Community Receives a New Doctor, A New Doctor in a Rural Community, Success of a Health Council Survey, How to Build a Hospital, and Nursing At the same time, five other new recordings, completing the Panorama of Medicine" series, also are ready for shipment to local medical societies by the A M A Bureau of Health Education These 15-minute panel discussion programs, organized by Marshall-Heseter Productions, New York originally were broadcast from station KCBS in San Francisco during the A M A session in June

QUARTERLY CUMULATIVE INDEX MEDICUS

Volume 52 of the Quarterly Cumulative Index Medicus, covering literature for the second half of 1952, has been mailed to subscribers and is now available for purchase from the Order Department of the American Medical Association Volume 45 (January-June, 1949), which has been held as a backlog for several years is now being reproduced, and this issue is scheduled to appear next Editing of cards for volume 53 (January June, 1953) will begin about the first of October

INVITATION TO ANNUAL CONFERENCE IN JAMAICA

The Jamaica branch of the British Medical Association has extended a cordial invitation to members of the American Medical Association to attend its annual conference to be held in Kingston Dec 3-4 immediately after the Clinical Meeting of the A M A in Miami Fla Nov 29 Dec 2 The Jamaica branch has been in existence since 1877 and represents more than 300 doctors in that country A special session for Saturda morning would be arranged at which the Jamaica branch would be pleased to have two three or four members of the A M A speak on subjects to be arranged A reception and dance would be held in the evening at which the guests would be received by the Governor of Jamaica. Kingston is within three hours by air from Miami

MEDICAL NEWS

CALIFORNIA

Director Needed for Cardiorespiratory Laboratory —The San Diego Heart Association will sponsor a director of the cardiorespiratory laboratory at the new Sharp Memorial Hospital Immediate applications will be considered The laboratory, which will include facilities for electrocardiography, angiocardiography, fluoroscopy cardiac catheterization, and pulmonary function studies and will carry on all the cardiopulmonary diagnostic work for the hospital, will be completely equipped at an outlay of about $45,000 The salary of the director is open, as is the duration of the contract Possibilities are now being explored for affiliation with a medical school Interested physicians should write to the Heart Center Committee, San Diego Heart Association, 1651 Fourth Ave , San Diego 1

COLORADO

State Medical Meeting —The Colorado State Medical Society will hold its 84th annual session at the Broadmoor Hotel, Colorado Springs, Sept 21 to 24, under the presidency of Dr Claude D Bonham, Denver Presentations by out-of-state speakers include

Recognition and Management of Chronic and Relaxing Pancreatitis *Surgical Management of Cholelithiasis and Its Sequelae* Kenneth W Warren Boston
Difficulty in Swallowing Constipation and Its Management Franz J Ingelfinger Boston
Endocrinology in Children Jaundice in the Newborn, Barton Childs Baltimore
Experiences with a Vitallium Intramedullary *Artificial Hip Common* Difficult Fractures Frederick R Thompson New York
Visceral Pain Mechanism Evaluation of Treatment in Disease, Stewart G Wolf, Oklahoma City
Thrombophlebitis Relation of Smoking to Lung Carcinogenesis, Alton *Ochsner, New Orleans*

Thursday at 8 45 a m a motion picture, "The Etiology of Pollenosis," by Dr D Eugene Cowen, Denver, will be shown The Thursday afternoon program will begin at 1 30 instead of 2 p m , as previously announced, to permit viewing of the television symposium on hypertension (3 to 4 p m), which will be transmitted through a national closed circuit over the Columbia Broadcasting System by the American College of Physicians (THE JOURNAL, Aug 28, page 1591) Because of the state medical meeting, Colorado Springs will be used as the receiving station, although original plans were to send the telecast to Denver The annual banquet Thursday at 7 30 p m will be addressed by Dr W W Bauer, Chicago, Director, A M A Bureau of Health Education, whose topic will be "Patients Are Particular People " At 9 30 p m there will be dancing in the Hawaiian Village The woman's auxiliary will meet simultaneously with the state association Its Friday morning session will be addressed by Dr Henry C Grabow, Canon City, whose topic will be "Where Do You Fit?"

DISTRICT OF COLUMBIA

Medical Election —Newly elected officers of the Medical Society of the District of Columbia include Dr William Ross Morris, president-elect, Dr Paul A Wilner, first vice-president, and Dr Margaret M Nicholson, second vice-president Dr Preston A McLendon serves as president

Smithsonian Exhibit of Electrocardiography.—During the World Congress of Cardiology in Washington, D C , Sept 12 to 18, the Smithsonian Institution will inaugurate a permanent exhibit on the evolution of the electrocardiograph The exhibit, containing an electrocardiograph enclosed in plexiglass instead of metal so that all controls and components can be viewed from any angle with the aid of a mirror back-drop, shows diagrammatically how an electrocardiograph is used on a patient

FLORIDA

Society News —At a recent meeting of the Miami Pediatric Society, Dr Meyer B Marks, Miami Beach, was elected president and Dr Martiele Turner, Coral Gables, secretary-treasurer The society gave a testimonial dinner on June 11 to Dr William Watson McKibben, 80 years old, who has been in continuous pediatric practice in Dade County since 1923

Obstetric Seminar —The Tri-State Obstetric Seminar will be held Sept 13 to 15 at the Sheraton Beach Hotel, Daytona Beach, under the sponsorship of the maternal and child health divisions of Florida, Georgia, and South Carolina and the Florida Medical Association The speakers will include the following physicians R Gordon Douglas, New York, F Bayard Carter, Durham, N C , Willis E Brown, Little Rock, Ark , James G Hughes, Memphis, Tenn , Milton L McCall, New Orleans, William Mingert, Dallas, Texas, and Allan C Barnes, Cleveland This seminar has been approved for credit hours by the American Academy of General Practice There will be no tuition fee

ILLINOIS

Clinics for Crippled Children —The University of Illinois division of services for crippled children will conduct the following clinics in cooperation with local medical and health organizations

Sept 14 East St Louis St. *Mary s Hospital, Peoria* St Francis Hospital
Sept 15 Evergreen Park, Little Company of Mary Hospital, Jacksonville *Our Saviour s Hospital*
Sept 16 Anna City Hospital, *Rosiclare,* Y M C.A Building.
Sept 17, Evanston St Francis Hospital
Sept 21, Centralia Recreation Center
Sept 22 Aurora *Copley Memorial* Hospital, Springfield (cerebral palsy) *Memorial Hospital*
Sept 23 Bloomington *St Joseph's Hospital Chester Lutheran* School, Rockford St Anthony Hospital.
Sept 24 Chicago Heights (rheumatic fever), St James Hospital
Sept 28, *Effingham (rheumatic fever),* St *Anthony s Emergency Hospital,* Peoria, St Francis Hospital

Chicago

Free Public Lectures —The Museum of Science and Industry, 57th St and Lake Michigan, announces the following free lectures Sundays, 3 p m

Sept 12, A Problem of Thirty Million Americans *Hay Fever and* Other Allergies, Max Samter Chicago
Sept 19, Living with Your Ulcers Armand Littman Chicago
Sept. 26 What You Should Know About Arthritis Irving E. Steck Chicago
Oct 3 Dejected Depressed or Delightfully Drunk, *Jules H Masserman* Chicago
Oct 10 How Old Is Your Infant at Birth Arthur H Parmelee Sr, *Los Angeles*

KENTUCKY

Dr Stovall Honored —J Watts Stovall, Grayson, president of the Kentucky State Medical Association, will be honored on a "This Is Your Life" type of program at the annual Friends of School Day Picnic at Carter Caves State Park, sponsored by the Carter County Teachers' Association, Sept 17 Dr Stovall, who has practiced for almost 50 years, has been a member of the Grayson Board of Education for 12 years

Society News.—The Association of Ex-Residents, Fellows, and Interns of the Louisville General Hospital and the University of Louisville School of Medicine was organized at a dinner meeting in June Dr DeLou P Hall, Louisville, was elected the first president The object of the association is to promote the interest of the Louisville General Hospital and the welfare of those who receive professional training in it, to develop an *esprit de corps* in the house staff, and to sustain an interest in the hospital for those who have completed their training

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health Programs should be received at least three weeks before the date of meeting

MINNESOTA

Southern Minnesota Medical Meeting—The annual meeting of the Southern Minnesota Medical Association will be held at Winona, Sept. 13 The program for the morning session includes

Carcinoma of the Common Duct. Report of Two Cases William O Finkelnburg Winona
Indications and Contraindications for Tonsillectomy Jennings D Sjoding, Mankato
Massive Gastric Hemorrhage with Cause Unknown Preoperatively Charles E. Rea, St. Paul.
Fundamental Considerations in Diagnosis and Treatment of Tumors of Colon and Rectum Walter A. Fansler and William T Smith, Minneapolis.
Psychoses Associated with the Postpartum Period Ernest M. Hammes Jr St. Paul.
Current Status of Radioisotopes in Diagnosis and Treatment of Blood Dyscrasias Charles F Stroebel Rochester
Precautions in the Use of Cortisone L. Emmerson Ward Rochester
Hearing Loss in Children Detection, Treatment, and Rehabilitation, Kinsey M. Simonton Rochester

The following papers have been scheduled for the afternoon session

Cardiac Surgery to be announced.
Tumors of the Brain and Spinal Cord Hendrik J Svien Rochester
Nursing Education Problem in Minnesota, Thelma Dodd, R.N St. Paul.
Teratoma of the Pelvic Colon Presenting in the Lumen Case Report, Stanley T Kucera Northfield.
Pulmonary Hypertension Due to Thromboembolic Pulmonary Arterial Disease Following Pregnancy Case Report, Ben Sommers St. Paul.
Meconium Peritonitis, Case Report, George R. McNear Mankato
Giant Condyloma (Verruca) Simulating Carcinoma of the Penis, Case Report, Isadore I. Fisher Minneapolis.
Lipoid Pneumonia Differential Diagnosis of Lung Shadows, J Gordon Beaton Northfield.

MISSOURI

University News.—Dr Iain D Ferguson, Rutherglen, Scotland, who has been teaching at the Institute of Physiology, University of Glasgow, has been named assistant professor of physiology at the St Louis University School of Medicine

Urology Meetings in Kansas City—A series of meetings on urologic subjects has been announced for the 1954-1955 season by Dr Clarence S Capell, secretary, Kansas City Urological Society Each meeting, to be held at the Pine Room, Fred Harvey Restaurant, Kansas City Union Station, will consist of a social hour at 6 p m followed by dinner, a scientific paper, and the presentation of urograms The following programs will be given

Sept. 15 Clinical Significance of Renal Efficiency William M. Valk, Kansas City Kan. and Robert H Owens Kansas City
Oct. 7 Uretero-Enterostomy Justin J Cordonnier St. Louis and Arthur L. Stockwell Kansas City
Nov 17 Tumor of the Bladder Arnold G Isaac Newton Kan. and Pratt Irby Fort Scott, Kan.
Jan 19 1955 The Female Urethra, R. L. Hoffman and William W Leifer Kansas City
Feb 16 Untoward Reactions from Urogram Injections Joseph G Siceluff Springfield and Bernell W Andrews Kansas City
March 16 Urinary Calculi Hjalmar E Carlson and Jacob Zellermayer Kansas City
April 24 Urogenital Anomalies Oscar W Davidson Kansas City Kan. and Robert B Bristow St. Joseph

The last hour of each session will be devoted to the presentation and interpretation of urograms. All urologists in the area are invited to attend and to take films

MONTANA

State Medical Meeting at Butte—The 76th annual meeting of the Montana Medical Association will be held at the Finlen Hotel, Butte, Sept. 16 to 19, under the presidency of Dr Sidney C Pratt, Miles City Guest speakers and their first presentations include

Advances in Cancer Research Brewster S Miller New York.
Toxemias of Pregnancy John H. Randall Iowa City
Traumatic Joints, Carrol B Larson Iowa City
Carcinoma of the Prostate—Use of Radioactive Gold Rubin H Flocks Iowa City
Treatment of Leukemia and Related Diseases Willis M Fowler Iowa City
Nutrition of the Surgical Patient Before and After Surgery Robert T Tidrick Iowa City
Gout and Its Therapy Charley J Smyth Denver

The scientific sessions will be concluded Friday with a clinical pathological conference 4 10 p m , moderated by Dr John A. Newman, Butte, with Drs Deane C Epler, Bozeman, George T R. Fahlund, Great Falls and Elizabeth Grimm, Billings, as collaborators A reception at 7 p m will precede the annual banquet, at which Dr Morris A Gold Butte will serve as toastmaster Palmer Hoyt, editor and publisher of the *Denver Post* will present "The Doctors Part in the International Crisis" The Silver Bow County Medical Society, under the presidency of Dr Robert G Kroeze, Butte, will be host to all members and guests of the association at a friendship hour Friday, 7 30 to 9 p m Dr Pratt will extend greetings at a luncheon of the woman s auxiliary, which will meet concurrently, and Dr Park W Willis Jr, Hamilton, chairman of the public relations committee of the Montana Medical Association, will deliver an address Dr Flocks will address the dinner meeting of the Montana Urological Society, Wednesday, 6 30 p m , and Dr Tidrick will discuss pediatric surgery at the dinner of the Montana Pediatric Society, Wednesday, 8 p m.

OHIO

Postgraduate Radio Program—Two contributions by Dr Charles A. Doan dean Ohio State University College of Medicine, Columbus will be included in the forthcoming postgraduate radio program series, 'For Doctors Only " "White Blood Cells in Health and Disease" will be broadcast Sept. 16, and "The Action of Drugs and Toxic Agents on the Blood Picture" will be heard Oct. 7, both from station WNYC

Personal.—Dr Jacob L Bubis, formerly chief of obstetrics and gynecology of Mount Sinai Hospital in Cleveland, has retired from the practice of medicine at the age of 69, after 46 years of service——Dr Richard D Bryant, associate professor of obstetrics at his alma mater, the University of Cincinnati College of Medicine, recently presented a paper entitled "Toxemia of Pregnancy" before the International Congress on Obstetrics and Gynecology at Geneva, Switzerland

Refresher Course in Aviation Medicine.—A postgraduate refresher course in aviation medicine will be offered at the Ohio State University Health Center, Columbus, Sept. 13 to 18 under the joint sponsorship of the college of medicine and the Civil Aeronautics Administration. This course, for private physicians, medical directors of airlines, and aeronautical industries, is designed to give information on medical problems peculiar to aviation and particularly civil aviation Topics to be covered will include aviation toxicology, cabin pressurization, effect of deceleration, cardiovascular diagnosis and problems, visual problems, psychiatry, endocrine and metabolic disorders and recent innovations in aviation and space medicine The faculty will include specialists from the C.A A , Western Reserve Medical School, the University of Pennsylvania and Ohio State University Applications have been received from physicians as far distant as Alaska and Mexico

WEST VIRGINIA

Meeting on Tuberculosis.—The 34th annual meeting of the West Virginia Tuberculosis and Health Association will be held at the Frederick Hotel in Huntington, Sept. 16 and 17 Thursday afternoon the West Virginia Trudeau Society will sponsor the following program

Emotional Aspects of the Tuberculous Claire M Vernier Ph.D Martinsburg.
Modern Treatment of Tuberculosis Ross L. McLean Baltimore
Surgery in the Treatment of Tuberculosis M Lawrence White Jr Huntington.

Dr Howard R. Crews, Huntington will serve as moderator for an x ray symposium in which case reports of tuberculosis and chest diseases will be presented and discussed Physicians are requested to bring films, with confirmed diagnosis for discussion and review

Speakers Friday morning will include Quin F Curtis, Ph D , head department of psychology West Virginia University, Morgantown Dr Helen B Fraser director of the department of disease control state department of health Charleston and Robert J Weymueller executive secretary, National Conference of Tuberculosis Workers, New York Dr A B Price regional medical director region 3 Department of Health Education, and Welfare Washington D C., speaker at the annual dinner Thursday evening will present "Views of Public Health Today " Both medical and general sessions will be open to the public.

GENERAL

American Association of Blood Banks—The American Association of Blood Banks will hold its annual meeting at the Shoreham Hotel, Washington, D C, Sept 13 to 15 A technician refresher course Sunday, 3 to 5 p m, will be followed by a buffet supper provided by the Metropolitan Washington Blood Bank Association The address of welcome will be delivered Monday morning by Dr Preston A McLendon, Washington, D C, president, Medical Society of the District of Columbia At 10 40 a m there will be a panel on hemolytic transfusion reactions, followed by discussion of individual papers Luncheon discussion groups on hemolytic transfusion reactions, the hepatitis problem, afibrinogenemia and related problems, and typing and cross-matching techniques will meet daily from 12 30 to 2 30 p m, and motion pictures will be shown from 2 to 5 p m On Wednesday, 1 to 3 p m, a luncheon panel on public relations is scheduled The Hon Val Peterson, former three-term governor of Nebraska and federal civil defense administrator since March 4, 1953, will be the principal speaker at the banquet As F C D A administrator, Mr Peterson is also national coordinator of natural peacetime disaster relief efforts His subject for the banquet will be "Blood Banking and the Civil Defense Program" Dr Aaron Kellner, New York, is president of the association

Prevalence of Poliomyelitis—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States and its territories and possessions in the weeks ended as indicated

Area	Aug 14, 1954 Paralytic Type	Aug 14, 1954 Total Cases Reported	Aug 15, 1953 Total
New England States			
Maine	2	6	23
New Hampshire		7	5
Vermont	2	2	5
Massachusetts	10	39	22
Rhode Island		1	10
Connecticut	6	17	15
Middle Atlantic States			
New York	25	87	169
New Jersey	22	30	47
Pennsylvania		57	63
East North Central States			
Ohio	29	108	166
Indiana	20	49	40
Illinois	47	96	161
Michigan	56	118	148
Wisconsin	11	37	41
West North Central States			
Minnesota	25	62	172
Iowa	19	78	49
Missouri	24	49	54
North Dakota	1	6	14
South Dakota		4	6
Nebraska	11	23	18
Kansas	4	45	32
South Atlantic States			
Delaware	3	4	2
Maryland	7	8	26
District of Columbia	2	4	5
Virginia	20	39	52
West Virginia	11	22	38
North Carolina	22	69	55
South Carolina	7	22	8
Georgia	22	57	13
Florida	20	63	84
East South Central States			
Kentucky	19	33	21
Tennessee	5	43	38
Alabama	11	17	19
Mississippi	6	40	21
West South Central States			
Arkansas	6	16	19
Louisiana	7	18	11
Oklahoma	6	37	40
Texas	61	159	70
Mountain States			
Montana	2	4	10
Idaho		3	8
Wyoming	5	24	1
Colorado	9	26	8
New Mexico	4	12	4
Arizona	3	15	43
Utah		2	6
Nevada		18	
Pacific States			
Washington	10	26	13
Oregon	4	12	10
California	110	197	170
Territories and Possessions			
Alaska	10	24	2
Hawaii	4	6	1
Puerto Rico			
Total	710	1,934	1,997

Meeting of Military Ophthalmologists and Otolaryngologists.—The Society of Military Ophthalmologists and the Society of Military Otolaryngologists will hold a joint dinner meeting at the time of the International Congress of Ophthalmology and the annual meeting of the American Academy of Ophthalmology and Otolaryngology in New York in September Dr Frederick C Cordes, professor of ophthalmology, University of California School of Medicine, San Francisco, will be awarded the plaque of honorary membership to the Society of Military Ophthalmologists at this meeting Cocktails and dinner will be served at 6 p m, Sept. 21, Shelton Hotel, Lexington Ave and 49th St All members, ophthalmologists, and otolaryngologists on active duty with the armed forces are invited to attend. Application should be made to Col John H King Jr, secretary-treasurer, Society of Military Ophthalmologists, Eye Clinic, Walter Reed Army Hospital, Washington 12, D C

Fellowships in Radiation Therapy—American Cancer Society clinical fellowships in radiation therapy are offered in 1955-1956 to qualified graduates in medicine who have already had thorough basic training in the principles and practice of radiation therapy and who desire to have additional training at certain clinics in the United Kingdom, the Scandinavian countries, and France Fellowships are available to citizens of the United States who are graduates of recognized medical schools in the United States and are under 40 years of age In the selection of applicants, priority will be given to physicians (1) who are already certified by the American Board of Radiology, (2) who have completed the required training in preparation for board examinations but have not yet taken the examinations, and (3) who, while intending to complete board requirements and take the examinations, are still in the training period The annual stipend for fellows in radiation therapy is $4,500, including travel The fellowship period shall be one year, although renewal for one year or less will be considered Fellowships may commence at any time mutually agreeable to the institution and the fellow Applications for fellowships for the year 1955-1956 must be submitted before Oct 1, 1954

James Picker Awards.—The James Picker Foundation announces the award of nine grants and two fellowships in radiological research for the coming year Grants were made to the following investigators in the United States

Dr Henry Doubilet, New York University College of Medicine, for continued work on the x-ray visualization of the biliary and pancreatic ducts.

Dr Jack Friedman, Mount Sinai Hospital, Minneapolis for studies on the effect of emotion on the mucosal pattern of the small bowel

Dr Jack W Grossman and Dr J L Howarth, Lovelace Foundation for Medical Education and Research, Albuquerque, N M for development of techniques for dose estimation using a cobalt 60 unit.

Dr George Jacobson and Dr Donald C Balfour Jr, University of Southern California School of Medicine Los Angeles, for an investigation of the use of pharmacological agents in the radiological diagnosis of gastrointestinal disease

Dr Gardner Middlebrook National Jewish Hospital, Denver for continued pulmonary angiographic preresection and postresection studies in tuberculosis and simulating diseases.

Dr Henry Plenk, University of Utah College of Medicine, for continued studies on the influence of drugs on radiation reaction

Dr William J Tobin Georgetown University School of Medicine, Washington D C for continued study of bone architecture

Fellowships were awarded for the coming year to Dr Murray G Smyth Jr, for studies on the distribution and dosage of colloidal and particulate sources of radioactivity, under the guidance of Dr Richard H Chamberlain at the University of Pennsylvania School of Medicine, Philadelphia, and to Dr KaKarla Subbarao, for an investigation of regional ileus as a roentgenological manifestation of disease, under the guidance of Dr Maxwell H Poppel at the Bellevue Hospital, New York.

American Hospital Association.—The annual convention of the American Hospital Association will be held in Chicago, Sept 13 to 16 At the general session Monday, 2 15 p m, at Navy Pier, the Hon Lister Hill, senator from Alabama, will discuss "Meeting Public Needs," after which Dr Alan Gregg, New York, vice-president of the Rockefeller Foundation, will consider "Individual Responsibility—The Keystone of the Voluntary Way" From 7 to 12 p m a "get-acquainted" evening has been scheduled at the Aragon ballroom Tickets ($5) may be purchased at the registration center of the Palmer House Saturday and Sunday and at Navy Pier on Monday

Dr Martha A O Malley, director, division of hospital and institutional services, Indiana State Board of Health, Indianapolis, will open the session on administrator-trustee-medical-staff relationships in small hospitals, Tuesday, 9 30 a m., with "Responsibility of the Board of Trustees," after which Dr Wayne C Rydburg, Swedish Hospital, Minneapolis, will discuss "Medical Staff Organization and Relationships" and L. C Mortrud, Ingalls Memorial Hospital, Harvey, Ill, will present data on the administrator Dr Edward L. Turner, Secretary, A M A Council on Medical Education and Hospitals, Chicago, will serve on the panel of commentators for the concurrent session on hospital planning to meet changing needs. Dr Frank R Bradley, St Louis, president-elect, American Hospital Association, will preside at the general session Tuesday, 2 15 p m, when 'Public Opinion—A Challenge to Hospitals" will be the topic Dr Edmund J Morrissey, San Francisco, former president, San Francisco Medical Society, will discuss The Physician's Role in Hospital Care"

A problem clinic for small hospitals will be conducted Wednesday morning Concurrently there will be a panel discussion, "Improving Our Face to-Face Relationships," by Dr Norman S Moore, Ithaca, N Y, Verne Kallejian, Ph D, director of education, American Hospital Association, Chicago, and members of the staff of Englewood Hospital, Chicago Hospital Accreditation—What It Means will be the topic for the general session Wednesday afternoon Dr Newell W Philpott, Montreal, Canada, chairman, board of commissioners Joint Commission on Accreditation of Hospitals, will open the session with 'Hospital Accreditation—A Public Service," after which Dr Kenneth B Babcock, Chicago, director of the joint commission, will discuss The Future of Hospital Accreditation" Dr Julian P Price, Florence S C, Trustee, American Medical Association will have as his topic 'Proper Medical Staff Organization", Dr Jack Masur, assistant surgeon general chief, Bureau of Medical Services, Public Health Service Washington D C, will talk on good medical records, and Dr LeRoy H Sloan, vice-chairman of the board of commissioners, joint commission, will discuss other hospital services.

A Hospital Is Ready for Accreditation—Or Is It? will be the question considered Thursday morning by a panel including Dr Masur, chairman, and Drs Anthony J J Rourke, New Rochelle, N Y Edward H Leveroos, Director, Division of Hospitals and Graduate Education, A M A. Council on Medical Education and Hospitals, Robert S Myers, Fernald C Fitts Jose L Gonzalez, and Kenneth B Babcock Chicago and Julian P Price, Florence, S C Thursday afternoon Dr Howard A Rusk, New York, will talk on needs and distribution of care for the chronically ill and Dr Harry F Becker, Battle Creek field secretary, Michigan State Medical Society, will discuss Controlling the Cost the Use and Misuse of High Quality Hospital Care" The annual banquet will be held Thursday, 7 p m, in the grand ballroom of the Palmer House The new president, Dr Frank R Bradley, director, Barnes Hospital, St. Louis, will be inducted

LATIN AMERICA

International Congress of Surgeons—The ninth international congress of the International College of Surgeons recently held in Sao Paulo, Brazil was attended by 27 delegations from different countries before whom 339 scientific papers were presented The opening session, at which the governor of the state of Sao Paulo presided, was addressed by Dr Max Thorek founder of the International College of Surgeons Dr Carlos Gama chairman of the committee of arrangements and Dr Oscar Cintra Gordinho president of the Brazilian section of the International College of Surgeons Owing to the absence of the retiring president Prof Hans Finsterer of Vienna because of illness, Dr Francisco Grana of Peru former president of the International College of Surgeons presided over the meeting of the house of delegates. Vienna was chosen as the site for the 10th congress to be held in 1956 The following new sections were approved obstetrics and gynecology neurosurgery plastic surgery ophthalmology and otolaryngology, and orthopedics. At the dinner congressman Camillo Aschar spoke in the name of the Brazilian section, Dr Max Thorek, Chicago, in the name of the college and Dr Edward J McCormick, then President of the American Medical Association, in that of the international section The central theme of the congress, Experience with Socialized Medicine Throughout the World," was discussed by Dr McCormick, whose topic was "The Malignancy of Socialized Medicine" Dr Maurice Dorbes, Morocco, who explained how the French government organized the medical services in Morocco, Roelf Ruding, Holland, who spoke of "The Rights and Principles of Freedom in Medicine", Dr David B Allman, Atlantic City, N J., Trustee of the A M A, who presented 'Delusion of Socialized Medicine Dr Morris Fishbein, Chicago, who emphasized the unanimity of opinion against socialized medicine, Pierre Lachapelle, Bordeaux, who told how the French government adopted an intermediate solution conciliating the opposing aspects of the problem and Cesarino Junior, Brazil, who related the situation in that country, where socialized medicine is, to some extent, adopted, there being 5,172 government-sponsored medical institutions with a staff of 20,905 physicians, constituting 40% of the medical activities in the country Other themes of the congress were "Antibiotics and Their Application in the Medical Specialties" and "Contrast Media in Radiology" Surgery among the Incas was discussed by Dr Francisco Grana, and the medical practices among the Navajo Indians were discussed by Dr Suren H. Babington, Berkeley, Calif Dr Desmond Mulvany, London, England, spoke about An Investigation into the Radioactive Content of the Human Body and Its Significance as a Factor in the Etiology of Cancer", Dr Raul Montera, Argentina, about Radioactive Isotopes in Neurosurgery", and Dr Moses Beherend Philadelphia, about "Evolution of Gastrointestinal Surgery" Cancer was discussed by Dr August F Daro, Chicago Dr Julio Baistrocchi, Argentina, and Drs Fernando Gentil and Arrigo Raia, Brazil

FOREIGN

Medical Meetings of France—The medical societies of general medicine in France and abroad are invited to participate in the second session of the Journées Médicales de France et de l Union Française in June, 1955, at Strasburg Each participating society is allowed one communication or report on a subject chosen by it, the name of the reporter and the subject to be sent to the secretariat not later than Oct. 15 The general subject of all reports and communications is "New Ideas in Therapeutics" A typewritten summary of the report in triplicate must reach the permanent directing committee before Jan 31, 1955, and must not exceed six pages of 45 lines each Information may be obtained from the Secretary General, Dr L Michelet, 12, rue Pierre Geofroix, Colombes (Seine) France

MEETINGS

AMERICAN MEDICAL ASSOCIATION Dr George F Lull 535 North Dearborn St., Chicago 10 Secretary

1954 Clinical Meeting Miami Florida, Nov 29 Dec. 2.

1955 Annual Meeting Atlantic City N J., June 6-10

1955 Clinical Meeting Boston Nov 29 Dec. 2.

1956 Annual Meeting Chicago, June 11 15

1956 Clinical Meeting Seattle Nov 27 30

ACADEMY OF PSYCHOSOMATIC MEDICINE, New York, Oct. 8 9 Dr Ethan Allan Brown 75 Bay State Road Boston 15 Secretary

AMERICAN ACADEMY FOR CEREBRAL PALSY Williamsburg Inn Williamsburg Va Nov 4-6 Dr Harry E Barnett 116 South Michigan Blvd Chicago 3 Secretary

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY The Waldorf Astoria, New York, Sept. 19-24 Dr W L Benedict, 100 First Avenue Bldg., Rochester Minn Executive Secretary

AMERICAN ACADEMY OF PEDIATRICS Palmer House Chicago Oct 4-7 Dr E H Christopherson 610 Church St., Evanston Ill., Secretary

AMERICAN ASSOCIATION OF BLOOD BANKS The Shoreham, Washington, D C Sept 13 16 Miss Marjorie Saunders, 3500 Gaston Ave, Dallas 4, Texas Secretary

AMERICAN ASSOCIATION OF MEDICAL RECORD LIBRARIANS Sheraton Cadillac Hotel Detroit Oct 4 8 Miss Doris Gleason 510 N Dearborn St, Chicago 10 Executive Director

AMERICAN CANCER SOCIETY Hotel Roosevelt New York Oct 17 24 Dr Charles S Cameron 47 Beaver St New York 4 Medical Director

AMERICAN CLINICAL AND CLIMATOLOGICAL ASSOCIATION Lake Placid Club, Lake Placid N Y Oct 14 16 Dr Marshall N Fulton 124 Waterman St Providence 6 R I Secretary

AMERICAN COLLEGE OF GASTROENTEROLOGY The Shoreham Washington, D C Oct 25 30 Dr A Xerxes Rossien 33 West 60th St New York 23 Secretary

AMERICAN FRACTURE ASSOCIATION Shamrock Hotel Houston Texas Oct 11-14 Dr H W Wellmerling 626 Griesheim Bldg Bloomington Ill, Secretary-General

AMERICAN HEART ASSOCIATION Jung Hotel New Orleans Oct 26 30 Mr Irving Hexter 44 East 23rd St New York 10 Secretary

AMERICAN HOSPITAL ASSOCIATION Palmer House Chicago Sept 13-16 Dr E L Crosby 18 East Division St Chicago 10 Director

AMERICAN MEDICAL WRITERS ASSOCIATION Hotel Sherman Chicago Sept 24 Dr Harold Swanberg 510 Maine St Quincy Ill Secretary

AMERICAN OTORHINOLOGIC SOCIETY FOR PLASTIC SURGERY The Waldorf Astoria New York Sept 19 Dr Louis J Feit 66 Park Ave New York Secretary

AMERICAN PUBLIC HEALTH ASSOCIATION Memorial Auditorium Buffalo, N Y Oct 11-15 Dr Reginald M Atwater 1790 Broadway New York 19 Executive Secretary

AMERICAN ROENTGEN RAY SOCIETY Shoreham Hotel Washington D C, Sept 21 24 Dr Barton R Young Germantown Hospital Philadelphia 44 Secretary

AMERICAN SOCIETY OF ANESTHESIOLOGISTS Netherland Plaza Hotel Cincinnati Oct 25 30 Dr J Earl Remlinger Jr 188 West Randolph St Chicago 1, Secretary

AMERICAN SOCIETY FOR THE STUDY OF ARTERIOSCLEROSIS Sheraton Hotel, Chicago Oct 31 Nov 1 Dr O J Pollak P O Box 228 Dover, Del, Secretary

AMERICAN SOCIETY OF TROPICAL MEDICINE AND HYGIENE Hotel Peabody, Memphis Tenn Nov 4-6 Dr John E Larsh Jr Dept of Parasitology, School of Public Health Univ of North Carolina Chapel Hill, N C Secretary

AMERICAN THERAPEUTIC SOCIETY The Chase Hotel St Louis Nov 4-7 Dr Oscar B Hunter 915 Nineteenth St N W, Washington D C, Secretary

ASSOCIATION OF LIFE INSURANCE MEDICAL DIRECTORS OF AMERICA Royal York Hotel, Toronto Canada, Oct 12-14 Dr Henry B Kirkland, P O Box 594 Newark N J, Secretary

ASSOCIATION OF AMERICAN MEDICAL COLLEGES French Lick Springs Hotel, French Lick, Ind Oct 17-20 Dr Dean F Smiley 185 N Wabash Ave Chicago 1 Secretary

CALIFORNIA ACADEMY OF GENERAL PRACTICE, Statler Hotel Los Angeles Oct 24 27 Mr Wm W Rogers 450 Mission St San Francisco, Executive Secretary

CENTRAL ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS Hotel Jefferson St Louis Oct 7-9 Dr Harold L Gainey, Suite 602 116 S Michigan Ave Chicago 3 Secretary

CENTRAL SOCIETY FOR CLINICAL RESEARCH, Drake Hotel Chicago Oct 29-30 Dr Robert H Ebert 950 East 59th St Chicago 37 Secretary

CLINICAL ORTHOPAEDIC SOCIETY Sheraton Hotel Chicago Oct 7-9 Dr John H Moe, 825 Nicollet Ave Minneapolis Secretary

COLORADO STATE MEDICAL SOCIETY, Broadmoor Hotel Colorado Springs, Sept 21-24 Mr Harvey T Sethman, 835 Republic Building Denver 2, Executive Secretary

CONGRESS OF NEUROLOGICAL SURGEONS, The Waldorf-Astoria, New York, Nov 4-6 Dr Bland W Cannon, 1092 Madison Ave, Memphis, Tenn, Secretary

DELAWARE, MEDICAL SOCIETY OF DOVER Oct 11-13 Dr Norman L Cannon, 1208 Delaware Ave, Wilmington Executive Secretary

DISTRICT OF COLUMBIA MEDICAL SOCIETY OF THE Hotel Shoreham Washington, D C Nov 1-3 Mr Theodore Wiprud 1718 M St N W Washington, D C Secretary

GULF COAST CLINICAL SOCIETY, Edgewater Park, Miss, Oct 21 22 Dr F C Minkler, Pascagoula Miss Secretary

INDIANA STATE MEDICAL ASSOCIATION Murat Temple, Indianapolis, Oct 26 28 Mr James A Waggener, 23 East Ohio St, Indianapolis 4 Executive Secretary

INDUSTRIAL HEALTH CONFERENCE (Houston), Shamrock Hotel Houston, Tex Sept 23-25 Dr Sidney Schnur, 411 Medical Arts Bldg Houston 2, Tex, Chairman

INTERSTATE POST GRADUATE MEDICAL ASSSOCIATION OF NORTH AMERICA, Municipal Auditorium, Minneapolis, Nov 1-4 Dr Erwin R Schmidt, 1300 University Ave, Madison 6 Wis, Secretary

KANSAS CITY SOUTHWEST CLINICAL SOCIETY, Kansas City, Mo, Oct 4-7 Dr Ira C Layton, 306 E Twelfth St, Kansas City 6E, Mo, Secretary

KENTUCKY STATE MEDICAL ASSOCIATION Brown Hotel, Louisville Sept 21-23 Dr Bruce Underwood, 620 S Third St, Louisville 2, Secretary

MICHIGAN STATE MEDICAL SOCIETY, Sheraton-Cadillac Hotel, Detroit, Sept. 29 Oct 1 Dr L Fernald Foster, 606 Townsend St, Lansing 15, Secretary

MIDWESTERN SECTION OF AMERICAN FEDERATION FOR CLINICAL RESEARCH, Thorne Hall Auditorium, Northwestern University Medical Campus, Chicago, Oct 28 Dr R L Grissom, Univ of Nebraska College of Medicine, Dept of Internal Medicine Omaha 5 Secretary

MISSISSIPPI VALLEY MEDICAL SOCIETY, Hotel Sherman Chicago Sept 22-24 Dr Harold Swanberg 510 Maine St, Quincy, Ill, Secretary

MONTANA MEDICAL ASSOCIATION, Hotel Finlen, Butte, Sept. 16-19 Mr L R Hegland 1236 N 28th St, Billings Executive Secretary

NATIONAL ASSOCIATION FOR MENTAL HEALTH, Hotel Statler, New York, Oct 23 25 Mr Robert M Heininger, 1790 Broadway, New York 19, Executive Director

NATIONAL PROCTOLOGIC ASSOCIATION Maryland Hotel, Chicago, Oct 7 9 Dr George E Mueller 59 E Madison St, Chicago 2 Executive Secretary

NATIONAL REHABILITATION ASSOCIATION Baltimore Oct 24 27 Mr E B Whitten, 514 16 Arlington Bldg, 1025 Vermont Ave N W, Washington D C, Executive Director

NEW HAMPSHIRE MEDICAL SOCIETY Mt Washington Hotel Bretton Woods, Oct 3 5 Dr W H Butterfield, 18 School St Concord, Secretary

NORTH TEXAS-SOUTHERN OKLAHOMA FALL CLINICAL CONFERENCE, Witchita Falls Tex, Sept 22 Dr C H Wilson, 1300 Eighth St Wichita Falls, Tex Chairman

OKLAHOMA CITY CLINICAL SOCIETY CONFERENCE Oklahoma City Oct 25 28 Dr Charles E Leonard, 512 Medical Arts Bldg Oklahoma City 2, Secretary

OMAHA MID-WEST CLINICAL SOCIETY Paxton Hotel, Omaha Oct 25 28 Dr Louis E Moon, 1031 Medical Arts Bldg Omaha 2 Secretary

OREGON STATE MEDICAL SOCIETY, Heathman Hotel, Portland Oct 13-16 Dr Charles E Littlehales, 1115 S W Taylor St Portland 5, Executive Secretary

PENNSYLVANIA MEDICAL SOCIETY OF THE STATE OF Bellevue Stratford Hotel Philadelphia, Oct 17-22 Dr Harold B Gardner 230 State St, Harrisburg Secretary

REGIONAL MEETINGS AMERICAN COLLEGE OF PHYSICIANS

Midwest, Indianapolis Claypool Hotel, Oct 9 Dr Wendell A Shullenberger, 3470 Central Ave Indianapolis Chairman

New England Hartford Conn Oct 22 Dr John C Leonard, 80 Seymour St Hartford Conn Chairman

New Jersey Newark Nov 3 Dr Edward C Klein Jr, 6 South Kingman Rd South Orange, N J Governor

Southeastern Edgewater Gulf Hotel Edgewater Park Miss, Oct 15 16 Dr E Dice Lineberry, 1529 N 25th St, Birmingham 4, Ala., Governor

SOUTHWESTERN SURGICAL CONGRESS Skirvin Hotel Oklahoma City Sept 20-22 Dr C R Rountree, 1227 Classen Drive Oklahoma City 3, Secretary

THE CONSTANTINIAN SOCIETY The Broadmoor Colorado Springs Colo, Sept 26 29 Dr C F Shook P O Box 1035 36 Toledo 1, Ohio, Secretary

VERMONT STATE MEDICAL SOCIETY, Mt Washington Hotel, Bretton Woods N H Oct 3-5 Dr James P Hammond, 337 South St Bennington, Secretary

VIRGINIA MEDICAL SOCIETY OF, Shoreham Hotel Washington D C, Oct 31-Nov 3 Mr Robert I Howard, 1105 W Franklin St, Richmond, Executive Secretary

WASHINGTON STATE MEDICAL ASSOCIATION Davenport Hotel, Spokane, Sept 18-22 Dr Bruce Zimmerman, 1309 Seventh Ave, Seattle 1, Secretary

WESTERN ASSOCIATION OF RAILWAY SURGEONS Sun Valley Idaho Sept 23 25 Dr Leo L Stanley, 1322 Fifth Ave San Rafael, Calif, Secretary

WISCONSIN STATE MEDICAL SOCIETY OF, Hotel Schroeder Milwaukee Oct 5 7 Mr Charles H Crownhart, 704 E Gorham St, Madison 3 Secretary

FOREIGN AND INTERNATIONAL

COMMONWEALTH HEALTH AND TUBERCULOSIS CONFERENCE Royal Festival Hall London, England June 21-25 1955 Mr J H Harley Williams Tavistock House North, Tavistock Square, London W C 1 England, Secretary General

CONFERENCE OF INTERNATIONAL UNION AGAINST TUBERCULOSIS Madrid Spain Sept 26-Oct 2 1954 Secretariat Escuela de Tisiologia Ciudad Universitaria Madrid, Spain

CONFERENCE OF THE SOLVAY INSTITUTE OF SOCIOLOGY Universiti Libre de Bruxelles, Brussels, Belgium Oct 18-23, 1954 For information write Assistant to the Secretary, A Dorsinfang Smets Solvay Institute of Sociology, Parc Leopold Brussels 4 Belgium

CONGRESS OF INTERNATIONAL ASSOCIATION OF APPLIED PSYCHOLOGY London England, July 18 23 1955 Dr C B Frisby, National Institute of Industrial Psychology 14 Welbeck St, London W 1, England President

CONGRESS OF INTERNATIONAL ASSOCIATION FOR THE PREVENTION OF BLINDNESS New York, N Y, U S A, Sept 12-17, 1954 Professor Franceschetti, 2 avenue Mirmot, Geneva, Switzerland, Secretary-General

Congress of the International Diabetes Federation Cambridge England July 4-8 1955 Mr James G L Jackson 152 Harley St London W 1 England Executive Secretary General.

Congress of International Society of Medical Hydrology Vichy Paris and Enghien France Sept. 24-27 1954 Dr Francon, 55 rue des Mathurins Paris 8e France Secretary-General

Health Congress of the Royal Sanitary Institute, Bournemouth England April 26-29 1955 Mr P Arthur Wells Royal Sanitary Institute 90 Buckingham Palace Road London S W 1 England Secretary

Inter American Congress of Radiology Shoreham Hotel Washington D C U S A April 24-29 1955 Dr Eugene P Pendergrass 3400 Spruce St. Philadelphia 4 Pa U S A Secretary-General

Inter American Session American College of Surgeons Universidad Mayor de San Marcos de Lima Lima Peru S A Jan. 11 14 1955 Dr Michael L. Mason 40 East Erie St. Chicago 11 Ill. U S A. Secretary

International Anatomical Congress Paris France July 25-30 1955 Prof Gaston Cordier 45 rue des Saints-Pères Paris 6e France Secretary-General

International Anesthesia Research Society Ambassador Hotel Los Angeles Calif U S A., Oct. 10-14 1954 For information write Dr T H Seldon 102 110 Second Avenue S W Rochester Minn U S A.

International Congress of Biochemistry Brussels Belgium Aug 1-6 1955 Prof C Liebecq 17 Place Delcour Liege Belgium Secretary General

International Congress of Comparative Pathology Lausanne Switzerland May 26-31 1955 Professor Hauduroy 19 rue Cesar Roux, Lausanne Switzerland Secretary-General

International Congress on Diseases of the Chest Barcelona Spain Oct. 4-8 1954 Mr Murray Kornfeld 112 East Chestnut St., Chicago 11 Ill U S A Executive Secretary

International Congress on the History of Medicine Rome and Salerno Italy Sept. 13 20 1954 For information write Segreteria XIV Congresso Internazionale di Storia della Medicina Instituto di Storia della Medicine Citta Universitaria, Rome, Italy

International Congress of Hydatid Disease, Madrid Spain Sept. 25-30 1954 Dr Jesus Calvo Melendro Hospital Provincial, Sorea Spain, Secretary-General

International Congress of Industrial Medicine, Naples Italy Sept. 13 19 1954 Professor Scipione Caccuri Director Institute of Industrial Medicine Policlinico Naples Italy Chairman Organizing Committee

International Congress of Internal Medicine Stockholm Sweden Sept. 15 18 1954 Professor Anders Kristenson Karolinska Sjukhuset, Stockholm 60 Sweden Secretary-General

International Congress of Military Medicine and Pharmacy Luxemburg Luxemburg Nov 7 12, 1954 Colonel A R. Vernengo Direcion General de Sanidad Militar Pozos 2045 Buenos Aires Argentina S A Secretary-General

International Congress of Nutrition Amsterdam Netherlands Sept. 13-17 1954 Dr M van Eekelen Centraal Instituut voor Voedingsonderzoek T N O 61 Catharynesingel Utrecht, Netherlands General Secretary

International Congress of Ophthalmology University of Montreal and McGill University Montreal, Canada Sept. 9 11 1954 and Waldorf Astoria New York N Y U S A Sept. 12 17 1954 Dr William L. Benedict 100 First Avenue Building Rochester Minn U S A. Secretary-General

International Congress of Plastic Surgery Stockholm Sweden Aug 1-4 1955 and Uppsala Sweden Aug. 5 1955 Dr Tord Skoog, Uppsala Sweden General Secretary

International Federation of Medical Student Associations Rome Italy Oct. 1 5 1954 Mr Jorgen Falck Larsen 12 Kristianiagade Copenhagen O Denmark, General Secretary

International Hospital Congress Lucerne Switzerland May 30-June 3 1955 Capt J E Stone International Hospital Federation 10 Old Jewry London E C.2 England Hon Secretary

International Society of Blood Transfusion Paris France Sept. 12 19 1954 For information write Colonel Julliard Société Internationale de Transfusion Sanguine 53 boulevard Diderot, Paris 12e France

International Surgical Congress Geneva Switzerland May 23 26 1955 Dr Max Thorek 1516 Lake Shore Drive Chicago Illinois, U S A Secretary-General

Japan Medical Congress Kyoto University and Kyoto Prefectural Medical College Kyoto Japan April 1 5 1955 Dr Mitsuharu Goto University Hospital Medical Faculty of Kyoto University Kyoto Japan Secretary-General

Latin American Congress of Anesthesiology Sao Paulo Brazil S A Sept. 12 18 1954 Dr Zairo E. G Vieira Praca Floriano 55-7 And Rio de Janeiro Brazil S A Secretario

Latin American Congress of Physical Medicine Lima Peru S A., Feb 14-19 1955 Dr Cassius Lopez de Victoria 176 East 71st St New York 21 N Y., U S A Executive Director

Medical Journalism Meeting Exposition Universelle Romaine Rome Italy Sept 30 1954 Dr H Clegg B.M.A. House Tavistock Square London W C 1 England Secretary

Medical Women's International Association Congress Lake Garda, Italy Sept 15 21 1954 Dr Ada Chree Reid 118 Riverside Drive New York 24 N Y., U S A President.

Pan American Academy of General Practice Lima Peru S A., Feb 11 25 1955 Dr Arturo Martinez, 54 East 72nd St. New York 21 N Y U S A Secretary

Pan American Homeopathic Medical Congress Hotel Gloria Rio de Janeiro Brazil, S A Oct. 2 13 1954 Dr Paul S Schantz, 103 West Main St Ephrata, Pa. U S A Executive Secretary

Pan Pacific Surgical Congress Honolulu Hawaii Oct. 7-18 1954 Dr F J Pinkerton Suite 7 Young Bldg. Honolulu 13 Hawaii, Director General

World Congress of Cardiology Washington D C U S A. Sept. 12 18 1954 Dr L. W Gorham 44 East 23rd St. New York 10 N Y U S A Secretary-General

World Congress of International Society for the Welfare of Cripples Scheveningen The Hague, Netherlands, Sept 13-1-7 1954 Secretariat. Miss H P Post, Pieter Lastmarkade 37 Amsterdam Z, Netherlands

World Medical Association Rome Italy Sept. 26-Oct. 2, 1954 Dr Louis H. Bauer 345 East 46th St. New York 17 N Y U S A Secretary-General

EXAMINATIONS AND LICENSURE

EXAMINING BOARDS IN SPECIALTIES

American Board of Dermatology and Syphilology *Oral* Ann Arbor Oct. 15-18 To be eligible candidates must have completed thirty-six months of training by October 1 Final date for filing application was May 1 Exec Sec Miss Janet Newkirk, 129 E. 52nd St., New York 22.

American Board of Internal Medicine *Oral* New York, Sept. 22 24 (candidates on the east coast) The closing date for acceptance of applications was April 1 *Written* Oct. 18 Final date for acceptance of applications was May 1 *Subspecialties Allergy* New York, Sept. 23 and *Pulmonary Disease* New York, Sept. 24 Closing date for acceptance of applications was May 10 Exec Sec-Treas Dr William A Werrell One West Main St. Madison 3 Wis

American Board of Neurological Surgery *Oral* New Haven November Final date for filing application is November 1 Sec Dr Leonard T Furlow 600 S Kingshighway St. Louis 10

American Board of Obstetrics and Gynecology *Part I* Various Centers Feb 4 *Part II* Chicago Deadline for receipt of applications is October 1 Sec Dr Robert L. Faulkner 2105 Adelbert Road Cleveland 6

American Board of Ophthalmology *Practical examinations 1954* New York City Dec 5-9 Final date for filing applications was July 1 1953 *Written 1955* Various cities Jan 24-25 Final date for filing application was July 1 1954 *Practical examinations 1955* Philadelphia, June 10-15 Chicago Oct 9-14 Sec Dr Edwin B Dunphy 56 Ivie Road Cape Cottage Maine

American Board of Orthopaedic Surgery *Oral and Written* Los Angeles Jan. 26-28 Final date for filing applications for Part II was Aug. 15 Sec. Dr Harold A Sofield 122 South Michigan Ave Chicago 3 Illinois

American Board of Otolaryngology New York City Sept. 13 17 Richmond Va March 6-10 1955 Sec Dr Dean M Lierle University Hospital Iowa City

American Board of Pathology Miami Nov 29 30-Dec. 1 Sec Dr William B Wartman 303 E Chicago Ave Chicago 11

American Board of Pediatrics *Oral* Chicago Oct. 8-10 and New Haven Dec 3 5 Ex. Sec. Dr John McK. Mitchell 6 Cushman Road Rosemont, Pa.

American Board of Physical Medicine and Rehabilitation *Oral and Written* Washington D C., Sept. 5-6 Final date for filing applications was March 31 Sec Dr Earl C Elkins 30 N Michigan Ave Chicago

American Board of Plastic Surgery Atlanta Ga., Oct. 20-22. Final date for filing case reports was June 1 Final date for filing case reports for spring 1955 examination is Jan 1 Corres Sec Miss Estelle E Hillerich 4647 Pershing Ave., St. Louis 8

American Board of Preventive Medicine *Parts I and II* Buffalo Oct. 9 11 Final date for filing applications was July 15 Sec., Dr Ernest L Stebbins 615 N Wolfe St., Baltimore.

American Board of Proctology *Part II* Philadelphia Sept. 25 26 *Examination in Proctology and Anorectal Surgery* Sec Dr Stuart T Ross 131 Fulton Ave., Hempstead New York.

American Board of Psychiatry and Neurology New York, Dec. 13 14 New Orleans Feb 28-March 1 1955 San Francisco Mid-October 1955 New York City December 1955 Sec., Dr David A. Boyd 102 110 Second Ave S W Rochester Minnesota.

American Board of Surgery *Part I* Oct. 28 March 31 and Oct. 27 1954 *Part II* New York, Oct. 12 13 Chicago Nov 9 10 St. Louis Dec. 14-15 Los Angeles Jan. 11 12 Galveston Jan 15-16 Washington Feb 8-9 Cincinnati March 8 9 New Orleans April 12 13 Philadelphia May 10-11 and Boston June 14-15 Sec., Dr John B Flick, 225 S 15th St., Philadelphia 2.

DEATHS

Crumbine, Samuel Jay, Jackson Heights, N Y, born in Emlenton Pa Sept 17, 1862 Cincinnati College of Medicine and Surgery 1889 member of the Kansas State Board of Health from 1898 to 1904 then secretary and executive officer until 1923, his methods for protecting the health of the people of Kansas attracted nation-wide interest through his crusade, the common drinking cup was abolished from public places by the Kansas state legislature and later he put the common roller towel out of use, responsible for national health campaigns based on slogans like "Swat That Fly," "Don t Spit on the Sidewalk," and 'Sleep with Your Windows Open , for many years dean of the University of Kansas School of Medicine, Lawrence-Kansas City, where he was professor of preventive medicine, while in Topeka he was a member of the House of Delegates of the American Medical Association, serving in 1921, on Dec 3, 1908, was elected the first president of the newly organized Kansas Society for the Study and Prevention of Tuberculosis, past president of the Association of Food, Dairy, and Drug Officials of the United States in 1914 president of the Conference of State and Provincial Health Authorities of North America and in 1925 appointed field secretary in 1923 became director of state relations and in 1925 general director of the American Child Health Association and established a six year program for the relief and rehabilitation of Puerto Rican children, the state of Kansas in 1943 honored him when the Crumbine plaque was unveiled in the Topeka Hall of Fame, a "Dr Crumbine Week" was officially declared throughout Kansas, and the Missouri Pacific Railroad, the first railroad to abolish the "common drinking cup," sponsored a publicity campaign throughout 11 states designating July as "Dr Crumbine Month", in 1952 the Kansas Public Health Association established the Samuel J Crumbine award for meritorious service to public health, his autobiography is entitled "Frontier Doctor", died in New York Polyclinic Hospital July 12, aged 91, of postoperative pulmonary edema

Moorman, Lewis Jefferson ⊕ Oklahoma City, born in Litchfield, Ky, Feb 9, 1875, Hospital College of Medicine, Louisville, 1901, professor emeritus of medicine at the University of Oklahoma School of Medicine, where he was dean from 1931 to 1935, specialist certified by the American Board of Internal Medicine, secretary-treasurer of the Oklahoma State Medical Association, of which he was president 1919-1920, honorary president for life, one of the founders, and for 29 years president of the Oklahoma County Health Association, assisted in the organization of the Oklahoma City Tuberculosis Society and was its first president in 1918, past president of the National Tuberculosis Association, Oklahoma Public Health Association, American Trudeau Society, Southern Tuberculosis Conference, and the Southern Medical Association, in 1935 was named to Oklahoma's Hall of Fame by the Oklahoma Memorial Hospital in recognition of his achievements in medicine, member of the House of Delegates of the American Medical Association in 1921, fellow of the American College of Physicians and the American Clinical and Climatological Association, of which he was at one time vice-president, honorary member of staff, St Anthony Hospital, affiliated with University, Wesley, and Mercy hospitals, formerly medical director and owner of the Farm Sanatorium, served as medical superintendent of the State University Hospital and Crippled Children's Hospital, editor-in-chief of the *Journal of the Oklahoma State Medical Association*, died Aug 2, aged 79, of cancer

Graves, Stuart ⊕ Ramer, Ala, born in Boonville, N Y, Feb 6, 1879, Syracuse University College of Medicine, 1911, dean emeritus and professor emeritus of pathology at the University of Alabama School of Medicine in Tuscaloosa, where he was dean from 1928 to 1947, professor of pathology and bacteriology at the University of Louisville (Ky) School of Medicine from 1914 to 1928 and dean from 1922 to 1928, acting state health officer of Alabama 1929-1930, fellow of the American College of Physicians, acting assistant surgeon for the U S Public Health Service from 1918 to 1922, and from 1920 to 1922 a member of the medical advisory committee of the Kentucky State Board of Charities and Corrections, formerly pathologist at the City Hospital in Louisville, Ky, received the LL D degree from University of Alabama in 1937, died in Blowing Rock, N C, July 14, aged 75

Cosgrove, Clair Peter ⊕ Los Angeles, born in Dillon, Mont., Jan 15, 1904, Northwestern University Medical School, Chicago, 1931, member of the American Academy of General Practice, vice-president of the Los Angeles County Medical Association, first elected president of the Los Angeles County Chapter of the California Academy of General Practice, member of the Hollywood Academy of Medicine, Crenshaw Academy of Medicine, and past president and an active member of the Medical-Dental Veterans Association of Los Angeles, served during World War II, member of the staffs of the Crenshaw Hospital, Daniel Freeman Memorial Hospital, and the Methodist Hospital, where he died June 29, aged 50

Bishop, Eliot, Brooklyn, born in 1880, Dartmouth Medical School, Hanover, N H, 1904, specialist certified by the American Board of Obstetrics and Gynecology, past president of the Brooklyn Gynecological Society and the New York Obstetrical Society, a founder and past president of the Obstetrical and Gynecological Travel Club, attending gynecologist and obstetrician at Brooklyn Hospital, consulting obstetrician at Bay Ridge Hospital, Norwegian-Lutheran Deaconesses' Home and Hospital, and Methodist Hospital in Brooklyn, and at John T Mather Memorial Hospital in Port Jefferson, died in Portland, Maine, July 25, aged 74, of heart disease

Allen, Silas Gilbert ⊕ Stanton, Neb, Omaha Medical College, 1901, affiliated with Lutheran Hospital and Our Lady of Lourdes Hospital, local surgeon of the Chicago and Northwestern Railroad, died in Norfolk July 6, aged 80, of cerebral hemorrhage

Appold, George Dewey ⊕ Bergenfield, N J, Long Island College Hospital, Brooklyn, 1925, fellow of the International College of Surgeons and the American College of Surgeons, instructor of orthopedic surgery at the New York University College of Medicine, affiliated with Holy Name Hospital in Teaneck and the Englewood (N J) Hospital, died June 7, aged 55, of coronary thrombosis

Bach, Robert J, Milwaukee, Marquette University School of Medicine, Milwaukee, 1913, member of the National Gastroenterological Association, for many years surgeon for the U S Public Health Service, served as chief of staff of St Mary's Hospital, where he died June 5, aged 67, of pulmonary embolism

Barb, Kirk Bentley ⊕ Camden, N J, University of Oklahoma School of Medicine, 1915, chief medical examiner in city public schools, died July 22, aged 68, of coronary occlusion

Bassett, Thomas Richard ⊕ Mount Pleasant, Texas, Baylor University College of Medicine, Dallas, 1901, past president of the Titus County Medical Society, county health officer; died in Dallas April 19, aged 80, of arteriosclerosis

Callaway, James Willis ⊕ LaJolla, Calif, Northwestern University Medical School, Chicago, 1932, specialist certified by the American Board of Internal Medicine, member of the National Gastroenterological Association, fellow of the American College of Physicians, served during World War II, affiliated with Scripps Memorial Hospital and Scripps Metabolic Clinic, where he died June 25, aged 46, of carcinoma of the pancreas

Canizaro, Vito Joseph ⊕ Biloxi, Miss, Regia Università degli Studi di Roma Facoltà di Medicine e Chirurgia, Italy, 1935, served during World War II, died July 27, aged 47

Carswell, James Jr ⊕ McKinney, Texas, University of Illinois College of Medicine, Chicago, 1928, clinical assistant professor of surgery at Southwestern Medical School of the University

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⊕ Indicates Member of the American Medical Association

of Texas, Dallas, specialist certified by the American Board of Thoracic Surgery, president of the Collin County Medical Society member of the American Trudeau Society, affiliated with the Veterans Administration Hospital, where he died July 9, aged 52, of septicemia.

Conzelmann, Fred John ⊕ Stockton, Calif, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1905 specialist certified by the American Board of Psychiatry and Neurology, member of the American Psychiatric Association, veteran of the Spanish American War and World War I, for many years on the staff of the Stockton State Hospital, died June 26, aged 78, of angina pectoris

Culver, George Jacob ⊕ Au Sable Forks, N Y, Albany Medical College, 1914 for many years county coroner health officer, served during World War I, member of the staffs of the Champlain Valley and Physicians hospitals in Plattsburg; past president of the Rotary Club of Au Sable Forks, died July 4, aged 63, of intestinal hemorrhage

Cummin, John White ⊕ Boston, Harvard Medical School, Boston, 1896, fellow of the American College of Surgeons served on the faculty of his alma mater; formerly on the staff of the Massachusetts General Hospital, died at Phillips House July 16, aged 83

Doolittle, Sam Wade, Lancaster, Wis, Hospital College of Medicine, Louisville Ky, 1894, served overseas during World War I, died in the Madison (Wis) General Hospital July 3, aged 83, of arteriosclerosis

Dorvas, Adam Peter ⊕ Philadelphia, Temple University School of Medicine, Philadelphia, 1915, served during World War I, associated with Skin and Cancer Hospital for many years, died in Temple University Hospital July 21, aged 64

Douglas, Thomas Harrelson Jr ⊕ Camarillo, Calif, Washington University School of Medicine, St Louis, 1939, member of the Missouri State Medical Association, died July 5, aged 41

Duncan, Frederick Ransom, Waldron, Ark., Memphis (Tenn) Hospital Medical College, 1903, died in St. Edward s Hospital, Fort Smith, May 14, aged 78, of congestive heart failure

Essick, Charles Rhein ⊕ Reading Pa., Johns Hopkins University School of Medicine, Baltimore, 1909, member of the American Association of Anatomists, served as director of the Pennsylvania Tuberculosis Society, as president of the Reading Tuberculosis Association, and as vice president of the board of the Guidance Institute of Berks County, which he helped to establish, died June 26, aged 71

Frank, Paul George ⊕ Kew Gardens, N Y, Albert-Ludwigs-Universitat Medizinische Fakultät, Freiburg, Baden, Germany, 1897, on the staff of the Harlem Hospital New York City, died in Wickersham Hospital, New York City, April 18, aged 80, of heart disease

Freed, Cecil Forest ⊕ Reading, Pa, University of Pennsylvania School of Medicine, Philadelphia, 1920, fellow of the American College of Surgeons, on the staff of the Reading Hospital, died June 13, aged 60

Freymann, Walter ⊕ West New York N J Friedrich-Wilhelms Universitat Medizinische Fakultat, Berlin Prussia, 1920 member of the National Gastroenterological Association, died July 5 aged 61

Gill, James Pope ⊕ San Antonio, Texas, Vanderbilt University School of Medicine Nashville, Tenn 1926 captain in the regular Army until 1931 served during World War II member of the county health board affiliated with Santa Rosa Infirmary died April 4 aged 54, of chronic myocarditis and cerebral thrombosis.

Gore, George Walton, Goreville Ill St. Louis College of Physicians and Surgeons, 1905 died in Herrin (Ill) Hospital July 8, aged 80 of acute congestive heart failure

Hagen, William Andrew ⊕ Muskegon Mich Grand Rapids Medical College 1902 died June 21 aged 77, of a heart attack.

Honeycutt, Joseph B., Waco Texas University of Louisville (Ky) Medical Department 1897, died June 15 aged 85

Hubley, Benjamin Frank, Norristown, Pa., Medico-Chirurgical College of Philadelphia, 1891, died in Montgomery Hospital June 5, aged 85

Johnston, Walter Scott, Hemet, Calif, Homeopathic Medical College of Missouri, St Louis, 1908, formerly associated with the Indian Service, died July 1, aged 76

Kas, Thomas D ⊕ Sutherland, Iowa, Wisconsin College of Physicians and Surgeons, Milwaukee, 1909, at one time secretary of the Iowa State Department of Health served during World War I, on the staff of the Sioux Valley Memorial Hospital, died July 19, aged 71, of cerebral hemorrhage

Larkin, Henry Watson ⊕ Guthrie, Okla., University of Oklahoma School of Medicine, Oklahoma City, 1920 formerly superintendent of the Oklahoma Methodist Hospital, died July 10, aged 84, of pneumonia

Maguire, Elliott Francis ⊕ Philadelphia, University of Pennsylvania School of Medicine, Philadelphia, 1943, specialist certified by the American Board of Internal Medicine, served during World War II, died July 18, aged 39

Meador, Clarence Nelson ⊕ Corpus Christi, Texas, Northwestern University Medical School Chicago, 1917, from 1917 to 1922 a lieutenant in the regular Navy, in 1927 health officer of Caddo County, Okla., president of the Fred Roberts Memorial Hospital staff in 1938, died April 17, aged 64, of coronary occlusion

Monroe, Alfred E ⊕ Kansas City, Mo, Marion-Sims College of Medicine, St. Louis, 1893, died in the Bothwell Hospital, Sedalia, June 30, aged 84, of cerebral hemorrhage

Nicoll, David T ⊕ Bronxville, N Y Hering Medical College, Chicago, Homeopathic, 1903 member of the Kansas Medical Society, practiced in Topeka, Kan, for many years, died July 12, aged 90

Noonan, William Joseph ⊕ Minneapolis, School of Medicine of the Division of Biological Sciences, University of Chicago, 1935 specialist certified by the American Board of Urology, clinical assistant professor of surgery (urology) University of Minnesota Medical School, served during World War II, died July 21, aged 44

Olsen, Xenophon ⊕ San Bernardino, Calif., University Medical College of Kansas City, Mo, 1900 an Associate Fellow of the American Medical Association, died in St. Bernardine s Hospital July 13, aged 82, of myocardial infarction.

Pearce, Charles E., Knoxville, Tenn, (licensed in Tennessee in 1903) died in the Knoxville General Hospital July 8, aged 79, of arteriosclerotic heart disease

Raphael, Isidor J ⊕ Evansville, Ind, Rush Medical College Chicago, 1923, served during World War II, died in St Mary s Hospital July 4, aged 56, of acute monocytic leukemia

Roby, Joseph ⊕ Rochester, N Y, Columbia University College of Physicians and Surgeons, New York, 1896 for many years deputy health officer; served on the board of Rochester General Hospital where he was for many years chief of medical staff died in the Strong Memorial Hospital July 15, aged 82

Samuel, Ira Jay ⊕ Altoona Ala University of Nashville (Tenn) Medical Department, 1908 city health officer died July 23, aged 72 of injuries received in an automobile accident

Shelby, Hudson Swain ⊕ Oklahoma City, Okla. University of Oklahoma School of Medicine, Oklahoma City, 1933, died July 14 aged 53, of coronary occlusion

Tuttle, Ralph Weare ⊕ Wolfeboro N H Harvard Medical School Boston 1909 member of the New England Obstetrical and Gynecological Society past president and vice president of the New Hampshire Medical Society for two terms president of the Carson County Medical Society, chief of staff at the Huggins Hospital where he died July 5, aged 72, of pneumonia

Woodbury, Stillman Philetus ⊕ Millers Falls Mass. Long Island College Hospital, Brooklyn 1887, for many years school physician affiliated with Farren Memorial Hospital in Montague City and Franklin County Public Health Department in Greenfield died in Hadley June 12 aged 96

FOREIGN LETTERS

AUSTRIA

Acute Myocardial Infarction —At the May 28 meeting of the Society of Physicians of Vienna, Dr O Zimmermann of Meinzingen reviewed 356 cases of myocardial infarction observed during the years 1948 to 1953 Of these 73 4% were men The ages of patients ranged from 30 to 91 years Of the men 67 6% were less than 65 years old and 32 4% were 65 or over, but of the women only 36 1% were less than 65 years old and 63 9% were 65 or over The total mortality was 46 6% The mortality among patients less than 65 years old was 30% in men and 48 5% in women Among the patients of 65 or over the mortality of men was 60 7% and of women, 77 7% Anginal attacks or symptoms had existed in some patients for 21 years Nearly 25% of the patients had had such difficulties for over two years, and 14 6% for between three months and two years In nearly 25%, anginal attacks had been present for less than two months or for a few days before the infarct occurred, 14% had been free from symptoms previous to the infarct, in 7 5% infarction was without symptoms, and in 5% no history was available In 14% the history indicated that the infarct represented a relapse

The belief that myocardial infarction is a disease of executives is no longer held Syphilis, which was found in 2% of the men and 1% of the women, plays a very subordinate role in acute myocardial infarction Hypertension, however, which was observed in 22% of the men and in 48% of the women, is important and is chiefly responsible for the increased mortality in women, generally speaking, it makes the prognosis of acute myocardial infarction much more unfavorable The role of diabetes, which was present in 2 7% of the men and 3% of the women (in America 10% and 17%), is much less important, but acute coma or excessive insulin dosage can become dangerous in these patients A history of excessive use of tobacco was elicited in 40% of the men and 6% of the women Eleven per cent of the men and 1% of the women were in executive positions This fact, together with the relatively high percentage of women with myocardial infarction, militates against the concept that this is chiefly a disease of executives The importance of all factors that favor a neurocirculatory dystonia has been repeatedly emphasized by Zimmermann over the last 20 years The incidence of myocardial infarction has rapidly increased in younger persons on the basis of a hypersensitive sympathetic nervous system and also, frequently, as the result of the earlier appearance of manifestations of a wearing-out of the coronary arteries, in older patients the incidence, however, parallels the increase in the aging process as the manifestation of the simultaneously increasing severity of coronary sclerosis Sympathetic factors are of much less importance in this older group

In men infarcts of the anterior and posterior wall were of equal frequency, in women, however, there were 20% more infarcts of the posterior than of the anterior wall The mortality was 25% less in men with infarcts of the posterior wall only At autopsy infarcts of the septum were found in about 13% of the cases, they never occurred alone A pure supra-apical or lateral infarct was never observed at autopsy Old indurations were observed with new infarcts in 58 4% of the cases Severe coronary sclerosis and stenosis without thrombosis or embolism were observed in 33 5% of the cases of infarction seen at autopsy In three-fourths of all cases severe coronary sclerosis was seen at autopsy, in the remaining one-fourth, only slight sclerosis The coronary arteries were free of sclerosis throughout in seven cases

The concept "threatening infarct" is regarded as doubtful The short duration of previous anginal complaints in many patients and, on the other hand, their existence for many years, the fact that anginal disturbances may completely disappear at advanced ages, and the occurrence of the suddenly appearing and the silent infarct render this concept extremely vague, and thus there is no sure means of preventing infarction In 83 5% of the patients the electrocardiographic diagnosis was in complete agreement with the clinical and postmortem aspects, and chest leads clarified the diagnosis in only 1 3% Of the cases discovered at autopsy 11 2% were not explained by electrocardiography, in 5 3% no electrocardiographic records were available, because death was so sudden or a silent infarct occurred in comatose patients after an earlier electrocardiographic examination The unexplained 11 2% showed severe atypical electrocardiographic records such as bundle branch block and arborization block

Although the importance of chest wall leads has been amply demonstrated, their interpretation is not easy They show significant diagnostic features in patients with infarction of the anterior wall, but in those with infarction of the posterior wall the findings are not so consistent In supra-apical infarcts characteristic Wilson leads may furnish definite proof with almost normal or completely normal standard leads Mild pathological changes that are only suggestive, however, often do not permit a definite diagnosis of infarction even with Wilson leads The electrocardiographic diagnosis of the isolated lateral infarct is very difficult and unreliable even with chest wall leads A chest wall lead from the left rim of the sternum and from the apical beat is usually adequate The electrocardiogram does not permit a reliable conclusion as to the severity of the individual lesion, and even less a prognosis or an indication of the best treatment to be used The age of the infarct likewise cannot be ascertained by the electrocardiogram after the first changes have subsided Even a myocardial scar that has been present for years may give the impression of a relatively recent myocardial infarct

DENMARK

The Health of Greenland.—Such profound changes have recently occurred in Greenland that in 1948 government authorities in Denmark appointed a commission to discuss and plan a sweeping reorganization in every field In 1950 the findings of this commission were dealt with by the Danish Rigsdag, which adopted legislation affecting social, economic, political, judicial, cultural, and administrative conditions Reviewing these laws, Dr Mogens Fog-Poulsen explains in *Ugeskrift for læger* for July 29, 1954, how they function with regard to public health With an area 50 times greater than that of Denmark, Greenland had a population at the end of 1952 of only 23,469 native Greenlanders and 1,267 settlers from Denmark The original Greenlanders were Eskimos, descendants from North American nomads The Greenlanders of today are a mixture of Eskimos and North Europeans While seals and small whales were formerly the main source of food, the teeming waters round the coast have now done much to convert the Greenlander from hunting to fishing The new public health law of May 1, 1951, deals with 13 different medical districts, each with a hospital of its own In 1952 there were, altogether, 411 hospital beds, which in that year accommodated 3,441 patients There were also 70 beds in three children's sanatoriums dealing with surgical tuberculosis in children between the ages of 2 and 14 years A tuberculosis sanatorium with 211 beds is to be opened in November, 1954 In addition to the hospitals provided with a drug department there are some 100 depots of drugs and dressings in different parts of Greenland Drugs not requiring a physician's prescription can also be bought in any of 66 shops

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The items in these letters are contributed by regular correspondents in the various foreign countries

ENGLAND

Nursing Homes—An annotation in the *British Medical Journal* of June 12, 1954 describes the changes in the nursing homes of London in the past two decades At the end of 1937, 170 homes were registered Evacuation, damage by enemy action, shortage of staff, and other difficulties reduced the number of active homes to 108 in 1945, and the homes that survived the war had great difficulty in maintaining their standards The replacement of equipment (particularly linen), rationing, and the shortage of skilled staff had to be surmounted during the difficult war years and most nursing homes were then faced with heavy expenditure for repairs and redecoration in the immediate postwar years This alone was often enough to discourage the owners of the smaller home from continuing In addition the prewar nurse s salary of from $168 to $252 a year had by 1953 increased to $980 plus an allowance for living out It was not surprising, therefore, that between 1947 and 1953 there was a further drop in the number of nursing homes from 63 to 48 This drop of 24% in the number of homes in London since the National Health Service began, when measured in number of beds available, shows a decrease of 9 4% During this same period, 19 new homes were registered, but 34 were closed

Rising costs have alarmed the users as well as the owners of nursing homes Accommodations that before the war cost from $14 70 to $23 50 a week, with a maximum of about $35, today cost $32 to $70 a week—not a disproportionate increase when compared with rises in costs Fees of this magnitude, which may be borne for a short period by the acutely ill, are an impossible burden on elderly patients with small, fixed incomes In many cases, the expense is met for a time out of capital or by relatives or friends This is one of the main reasons why the number of empty beds in nursing homes has increased There are still some small homes with 6 to 10 beds charging about $17.50 upward, but at such a figure and with present-day prices no more than the bare minimum of nursing staff can be provided, and the food can hardly be of the highest quality Homes of this type appear to be on the border of solvency and are not likely to survive On the other hand, a few homes charge as much as $102 a week These homes are in constant use by physicians and surgeons of high standing, and the professional skill and care are matched by a service similar to that of a luxury hotel

The introduction of the National Health Service came at a time when the falling birth rate caused a reduction in the admissions to maternity beds in nursing homes, and it coincided with a period when maternity wards were being expanded in the hospitals The number of confinements taking place in nursing homes in London was 3,167 in 1947, in 1952 this number had fallen to 1,091 This large drop cannot be wholly accounted for by the fall in the birth rate from the exceptionally high figure of 20 9 per 1,000 population in 1947 to 15 3 in 1952 Recent annual reports of the medical officers of health of other large cities show the same trend Most homes found that in the postwar years less use was being made of their operating rooms and more beds were being used for medical cases particularly for the treatment of the chronically sick or senile patients

State registered nurses are not as a rule eager to work in private nursing homes, and the comparatively uneventful nursing of the chronically sick does not greatly attract them It is the state-enrolled assistant nurses or the older women trained, but without state registration, who nurse such patients The organization of comprehensive home nursing and home help services under the local health authority and the establishment of old persons homes under welfare provisions while in no sense a replacement of the private nursing home have added to the facilities available and undoubtedly had some effect in reducing the numbers of persons who might have gone into a private home The borderline between what constitutes nursing of the sick and caring for the old and enfeebled is ill defined Establishments that provide care for the aged by ordinary unskilled staff fill a real need, and there are good reasons why some of the smaller nursing homes should turn their attention to this type of person who so often fails to find the accommodations he or she is seeking

Reducing Waiting-Time of Outpatients.—Hospital authorities throughout England and Wales have been asked by the Minister of Health to review the working of outpatient departments in order to remove all reasonable causes of complaint. Matters that he thinks call for special attention are appointments systems, punctuality of staff, and reception of patients While much public criticism may well arise from lack of an adequate appreciation of the difficulties involved, the complaints made have been so widespread that they suggest that at a number of hospitals the suggestions previously made with regard to reducing the waiting time of outpatients either have not been put into effect or are not being successfully applied. The main points of criticism are that (1) patients called for an appointment at a particular time frequently have to wait for an hour or more before they are seen by the physician (2) the consultants in charge of clinics often arrive late, (3) appointment systems are badly organized, and (4) little attempt is made to explain to patients the reason for delays, to win their confidence, or to consider their comfort or needs

The minister believes that appointment systems should not only be universal but designed to ensure, as far as possible, that each patient is scheduled to arrive at the time he is expected to see the physician The old practice of "multiple" or block" bookings should be discontinued. The needs of parents with small children at home and of patients coming from a distance by infrequent buses or train also clearly call for separate consideration It should be impressed on consultants that the success of the appointment system depends on their being present on time and an administrative officer of adequate seniority should be made responsible for the efficient running of the appointment system. The minister urges special care in selecting the staff responsible for receiving patients and suggests that they should remember that patients are often anxious, bewildered, or even frightened and that it is essential to attend to their needs and comfort. Much criticism could be avoided by developing better relations with patients and with the public at large A helpful and kindly approach to outpatients by receptionists and other staff members is only one example of this Much more could be done to interest the public in the work of the hospitals the difficulties with which they have to contend, and the steps being taken to overcome them

On the other hand many patients arrive late or fail to keep the appointment made for them One general hospital in a period of five weeks found that 10% of patients failed to come and that often the consultant was left waiting. There are several reasons for this casual and thoughtless behavior, the effects of which could have been prevented if the patient had notified the hospital of his intention not to attend The chief reason is probably that, in the intervening time from the making of the appointment, the patient improved and decided it not worth while to come Another reason is forgetfulness, and another is that the general practitioner perhaps need not have referred the patient to the hospital Again another is that instructions as to the appointment were not made sufficiently clear Finally, it not infrequently happens that in the intervening period the patient has died, nobody thinks of telling the hospital

Medical Administration—Dr D F Hutchinson delivered the presidential address on medical administration to the metropolitan counties branch of the British Medical Association, and it is quoted in the *British Medical Journal* of June 12 After surveying the past and the development of the hospital superintendent, he said that, since 1911 when the National Health Insurance scheme started the general medical services became for the first time subject to a certain amount of government control and that local medical and panel committees were formed to look after the interests of the medical profession in this new situation. Yet in the whole course of National Health Insurance scheme only one such committee that of London, found it necessary to appoint a full-time secretary As the welfare state grew however there was more and more scope for the medical administrator

According to a recent survey, 690 physicians in this country were in the government service a certain number of these were doing clinical work but most were administrators Looking at other categories he was surprised to find that 144 physicians were doing administrative work in medical organizations (11 in the British Medical Association secretariat) In the hospital field there was a great difference between the clinical and the administrative outlook In Scotland, there was a general belief, which he shared that a hospital should be administered by a physician

In the general medical services of the country there is undoubtedly now much greater need for the medical administrator than in the past Most of the 20,000 physicians running the general medical services had neither the time nor the inclination to look after all the "paper work" or to learn the answers to all the curious questions that were raised In London and Middlesex it had been necessary to appoint full-time secretaries to the local medical committees, their primary job is to advise their colleagues, many of whom are excellent physicians and who yet sometimes show astonishing ignorance of the regulations Another important part of their work is to maintain liaison with local health authority and hospital services In other fields, as apart from the clinical work of the physician, are officials such as the secretaries of medical defense societies and members of the editorial staffs of medical journals

Dr Hutchinson concluded that it is essential for the medical administrator to have a sound clinical background He should always be prepared to answer any question, even if only to refer the inquirer to some other source of information Medical administrators must be careful to avoid any air of superiority, and they must have competent lay assistants, otherwise they will be bogged down by detail

Recovery Homes—Established as a half-way house between hospital and convalescent home for patients no longer in need of full hospital treatment but not ready for discharge, recovery homes can (1) secure a quicker turnover of beds in busy hospitals, (2) reduce hospital waiting lists, and (3) reduce maintenance costs per patient by up to two-thirds They are receiving much attention from hospital authorities The report of an inquiry made by King Edward's Hospital Fund says that all hospitals that have such homes are enthusiastic as to their value Recent developments in antibiotics have made these homes increasingly important With the risk of sepsis after operations almost eliminated, many patients no longer require full hospital facilities, although they may still be unfit to go to a convalescent home or to return home In several cases, a converted country house was found to be the most suitable building for a recovery home It remains under the supervision of the parent hospital The average stay in the recovery homes survey was 13 4 days The cost of treatment in a recovery home varies between 37 and 57% of the cost of a bed in a hospital The cost of adapting a suitable country house is much less than that of building additional hospital wards

New Mental Deficiency Hospital—The Minister of Health laid the foundation stone of Greaves Hall, near Southport, in May It is the first large hospital to be started in England and Wales since before the war, and it will be used for mentally defective patients Its estimated cost is about $8,400,000, and it will provide beds for over 1,000 patients The minister said that more than 2,500 new hospital beds for mentally defective patients are to be provided from centrally financed schemes in the next two years, but new building is not the only way in which it is hoped to improve the mental health services The services provided by local health authorities for mentally defective persons living at home are of great importance and have increased greatly in the last few years Although in recent years nursing recruitment has made great strides, the mental hospitals lagged behind the general advance and are still very short of nursing staff It is not yet sufficiently well known that the whole atmosphere of the mental hospitals has been revolutionized by modern methods of care and treatment and that these branches of the nursing profession now offer a career with interesting work and excellent prospects

Birthday Honors—It is customary on the occasion of the Queen's official birthday for her to confer honors, and it is usual for physicians and others connected with medicine to be included in the list Among those whose services have been recognized is Mr Alfred Chester Beatty, who has received a knighthood As an American who became a naturalized Briton, he has been a great benefactor to medicine In 1937 he bought the old Freemason's Hospital in Fulham and presented it to the Royal Cancer Hospital to house the well-known Chester Beatty Research Institute Mr Somerset Maugham, the author, was admitted as a companion of honor He qualified as a physician nearly 60 years ago A baronetcy was conferred on Sir Russell Brain, the president of the Royal College of Physicians of London, and a knighthood on Mr R C Brock, known throughout the world for his contributions to the surgery of the heart

Shortage of Dental Students—Dentists are so concerned by the small number of applicants for training in the dental schools that they have asked the Minister of Health to sponsor a national survey It is maintained that, if recruitment continues at its present slow rate, there will not be enough dentists to provide a proper public service in about 10 years At present, there are about 15,000 dentists on the register, but about 3,000 of these may not be practicing It is suggested that a national committee seek out ways of inducing more young persons to take up dentistry One main reason for the shortage is the fact that medicine attracts much the same type of student and that in most cases a medical career is first choice, since dentistry has not the same glamor and, in the minds of the public, a lower social standing

Patients Referred by Dentists for Penicillin Injections—The *British Medical Journal* says that the British Dental Association has sent the following letter to its branches and local dental committees "The British Medical Association has told us that difficulties have arisen in parts of the country where some dental practitioners have referred patients to doctors for penicillin injections The doctor is sometimes placed in an awkward position in dental cases of this kind if he decides that risks of sensitization and bacteriological resistance preclude the use of penicillin on a particular patient The British Medical Association has accordingly asked that any dentist referring a patient to a doctor for this treatment should make his request to the doctor in writing and should not give any details to the patient"

Mobile Hospital Teams for Major Accidents—The Ministry of Health has notified all local health authorities of arrangements that are being made for certain hospitals in all areas to be ready to send mobile medical teams to the scene of major civil accidents involving large numbers of casualties It will be the function of the ambulance service to call on the most appropriate hospital The ambulance service will be kept informed by hospitals of the number of beds remaining available for casualties If it is necessary to call on more distant "support" hospitals, the hospital medical officer in charge of a mobile team will keep the ambulance service informed as to which of the hospitals should receive casualties Mobile teams from hospitals will bring their own surgical and medical equipment

FRANCE

A Dangerous Remedy—At the hospital of Tours, M Rauzand and J Lutier treated a 31-year-old woman suffering from severe headache On admission they found no abnormal meningeal or ocular signs After several days a transitory amaurosis and a syncopal state developed, marked mental clouding occurred, the pulse rate dropped to 50, and Babinski's sign was seen on the left The patient was transferred to the neurological service of Professor Guillaume in Paris Ventriculography suggested a frontal lobe abscess An exploratory operation revealed neither pus nor induration, but the cerebrum was edematous On the following day it was learned that the patient had had a boil for which she had been given pills containing an organic stannous salt and vitamin F She had taken 29 of these in six days Many deaths have been reported in France in patients with syndromes suggesting acute encephalitis either from abscesses or from brain tumors and in whom the autopsy showed a cerebromeningeal edema These patients had complained of severe headaches and mental clouding Investigations by the board of health have shown that these patients were given pills containing the organic stannous salt Inorganic stannous salts have been used for a long time in treating boils without provoking intoxication Many hypotheses are evoked concerning the toxicity of the organic iodic stannous salt (generally not toxic) used in the lethal preparation According to one of these, the formation of stannous tetraethyl, in some cases, might be the cause of death

Cancer of the Breast—Considering the diversity of cancer of the breast and the necessity of varying the treatment according to the different types of tumor, P F Denol has studied records of 5,931 patients with cancer of the breast He classifies cancer of the breast in *the following groups* 1 A localized form of cancer found within the limits of the breast, originating without any invasion of the local lymph nodes—this may be the only form for which an operation can surely cure the disease, but even in this form, operation may result in metastasic generalization This form develops through steps characterized by peritumoral edema, a definitely palpable tumor, and growth of the tumor This type of tumor should not be operated on during its early development because this may result in the development of a more serious form 2 A localized form extending beyond breast tissue—this spreads steadily and quickly but without invading the tributary lymph nodes 3 A lymphatic form—this at the outset is accompanied by histologically demonstrable invasion of the local lymph nodes 4 A diffuse form—this at the time of the first examination is found to have metastasized The clinical manifestations of disseminated metastases may even occur before those of the initial tumor, for this form the treatment must be general instead of local Cancers of the first three forms are of two kinds, those sensitive to androgens and those sensitive to estrogens

Treatment of the Dangerous Alcoholic—On April 15, 1954, the National Assembly passed a law in regard to the dangerous alcoholic Any alcoholic dangerous to himself or others may be reported to the sanitary authority, which will investigate his family, professional, and social life and have him medically examined If it is safe to release him he will be placed under the care of a social worker or a reliable antialcoholic society If he cannot be released he may be summoned to appear before the civil court, which may send him to some center for the rehabilitation of alcoholics In the next two years some centers of this type are to be built. An alcoholic may be sent to such a center for six *months* This may be *extended for another* six months if necessary An alcoholic may, however, be released sooner with the approval of the chief physician of the center The patient may ask to appear before the court to plead for his release When he leaves the center he is kept on probation for one year under the care of a social worker The patient who escapes from the preliminary medical examination is liable to a fine of 200 to 1,000 francs In case of a relapse the alcoholic will be imprisoned for eight days The same penalties are applicable to patients who leave the center without authorization Special arrangements are provided for dangerous alcoholics suffering from mental disorders

Cancer of the Esophagus.—In *Les échos de la medecine* of June 15, 1954 A Morice of Caen reviewed the records of 50 patients with cancer of the esophagus, 30 of whom were heavy drinkers of cider brandy The patients were seen so late in the course of the disease that only seven could be operated on Two of these died within a few days after operation Of the other five, only one was still alive, two died of delirium tremens, one of alcoholic coma, and one of hepatic cirrhosis

TURKEY

Reticuloendothelial Histiocytosis—In *Klinik* (vol 11 no 10) Dr Ziya Tanan described two patients with acute malignant reticuloendothelial histiocytosis For two months the first patient, a 30-year old woman, had loss of appetite a bitter taste, weakness, swelling and bleeding of gums nausea, vomiting, and an intermittently elevated temperature Examination on admission revealed an inorganic cardiac souffle, a slightly swollen abdomen and a tender epigastrium The temperature was 101 3 F, pulse rate 105 per minute, and blood pressure 140/80 mm Hg The erythrocyte count was one million per cubic millimeter, hemoglobin level 35% of normal, and leukocyte count 10,000 per cubic millimeter, with 74% histiocytes, 8% large monocytes, 6% lymphocytes, 5% monocytes, 4% polymorphonuclear neutrophils, and 3% plasmocytes Although the sternal puncture did not reveal a myeloid reaction, it showed an abundance of histiocytes, megakaryocyte-like multiform nuclei, and giant phagocytes The sedimentation rate was 40 The coagulation time was 5 minutes and the bleeding time 2 5 minutes After 10 days the erythrocyte count was 600,000 per cubic millimeter, the hemoglobin level 30% of normal, and the leukocyte count 37,000 per cubic millimeter The patient was given two blood transfusions of 500 cc each, and after two days the erythrocyte count was 2,600 000 and the leukocyte count 25,000 per cubic millimeter Intermittent fever continued The patient was given liver extract, *vitamins, and cardiac tonics Her vomiting* ceased, but her chest pain and feeling of faintness soon returned After another 10 days the erythrocyte count was 1,200,000 per cubic millimeter, the hemoglobin level 30% of normal, and the leukocyte count 30,000 per cubic millimeter The patient s condition deteriorated, and after two more blood transfusions she died, three months after the onset of the disease

The second patient was a 50-year-old man who complained of weakness, pain in the back, swelling of the abdomen, intermittent chills, and fever Examination revealed an enlarged liver The spleen had descended below the umbilicus. He had cervical and inguinal lymphadenopathy His temperature was 100 4 F, and his pulse rate was 100 per minute His erythrocyte count was 3,100,000 per cubic millimeter, hemoglobin level 70% of normal, and leukocyte count 5,000 per cubic millimeter, with 58% histiocytes, 30% polymorphonuclear neutrophils, 6% monocytes, 5% lymphocytes, and 1% eosinophils The splenogram did not show parasites, but there were 30 to 40 histiocyte-like giant phagocytes in every field. Sternal puncture revealed an absence of myeloid cells and the presence of an enormous number of destroyed cells The sedimentation rate was 85, the coagulation time was *5 to 10* minutes, and the bleeding time was 1 5 minutes Although the patient was given blood transfusions and palliatives, he died four months later

Curettage Eliminates Chorioepithelioma.—In *Dirim* (vol 29, no 4) Dr Tarik Maktav reported on the beneficial effect of curettage in a patient with chorioepithelioma. A 20-year-old woman was referred to the hospital because of imminent septic abortion Her temperature was 102.9 F and her pulse rate was 120 per minute After treatment the hemorrhage ceased and the patient was discharged Curettage was performed later As the material had the characteristics of retained products of conception, and as macroscopic examination did not show evidence of a hydatid mole, a histological examination was not performed When follow-up revealed that slight bleeding continued and there were signs of anemia, the probability of a mole or *chorioepithelioma was considered Another* curettage was performed, and the scrapings were sent to the Istanbul University Cancer Institute, where a diagnosis of chorioepithelioma was made The patient, who had been discharged reported that she was feeling fine, but she was readmitted two weeks later and another curettage was performed This time the scrapings submitted to the Cancer Institute showed only endometrium thus confirming the beneficial effect of curettage on chorioepithelioma that was the result of abortion

Irradiation of the Nasopharynx.—In Turkey the Crowe sound was first used in 1947 by Dr Arhan Toros of Istanbul, and he has used it in treating 105 of his patients with good results In *Dirim* (vol 26 no 8) Prof Nüzhet Atav and Dr Emin Burad reported on their experience with irradiation therapy by the Crowe method in 50 children 10 to 15 years old who had lymphoid nasopharyngeal hypertrophy The chance for audiometric improvement was better when the therapy was given in the early stages of the condition and with a larger dose The therapy consisted of introducing 50 mg. of radium through a Monel metal tube for 12 minutes every two weeks Each patient was given three such treatments Audiometric amelioration was 56% subjective amelioration was 65%, and general amelioration was 82% Untoward side-effects were not observed

CORRESPONDENCE

SOCIAL SECURITY FOR PHYSICIANS

To the Editor —Permit me to extend my views on an article in the Washington News of the July 10, 1954, issue of THE JOURNAL

The disciples of Oscar Ewing are again attempting to strangle the medical men of the nation They could not get in the front door so now they are trying to sneak in through the cellar door The Socialist planners are the only ones, so they think, who know (1) how you should live, and (2) earn your living, and (3) spend your money, and now even (4) save your money for your old age!

Social Security is neither social nor is it security It is another form of income tax, and concealed behind its deceptive label is one of the most nauseating schemes forced down the throats of the American public It has already enslaved millions of our people and is insidiously changing them into fawning vassals of the all-powerful State Compulsory coverage, old age and survivors insurance is a brazen violation of the privacy of American citizens It certainly smacks of a peculiar and somewhat naive philosophy of life Do its proponents think they are speaking to irresponsible teenagers who have yet to learn what sacrifice, hard work self-denial, and thrift mean? Any person who has the intelligence and ability to earn a living and make his own way through life certainly possesses and can utilize that same wisdom in managing his own personal affairs

At a very early age in life wise parents begin to teach their children to work hard while they are young and to save their money for their old age and for any emergencies, so that they can enjoy the fruits of their labor Every self-respecting human does not relish the thought of having to go to the government with his hand out, waiting for the bureaucrats to dole out to him his own hard-earned money Mrs Hobby, according to THE JOURNAL, very strongly favors compulsory coverage for physicians and other self-employed—and I very strongly favor that the above lady "mind her own business and tend to her knittin' " My husband, who is a physician, and I are extremely capable of protecting ourselves for our old age and insuring our family without any help from the federal bureaucrats

Here, indeed, is an issue with a vital challenge to all freedom-loving souls, and every physician worthy of the name should arise with righteous indignation to beat back this social security plan, which is nothing but a hideous subterfuge to force them and other self-employed to support or subsidize a bankrupt plan Here, too, is where the Women's Auxiliary should play a tremendously vigorous part After all, we are our husband's partners May I urge the American Medical Association to continue its forthright and courageous stand to keep our men, and itself, free from any stranglehold by the government

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APLASTIC ANEMIA AND CARBON TETRACHLORIDE

To the Editor —THE JOURNAL (155 737 [June 19] 1954) published an article by Bernard Straus entitled "Aplastic Anemia Following Exposure to Carbon Tetrachloride " Without in any measure challenging the reliability of the clinical and laboratory findings presented, it becomes necessary to entertain reservations that carbon tetrachloride was the prime or sole causative agent Of all industrial solvents, carbon tetrachloride more than any other has led to substantial reports as to toxic properties Every degree of severity of involvement has been investigated, including mild functional disorders, acute nonfatal cases, rapidly fatal cases, and fatal cases with delayed symptoms Autopsy appraisals have been frequent. The consensus of opinion is that expressed by Browning "There appear to be no pathognomonic blood changes associated with carbon tetrachloride intoxication " However, Browning does mention one fatal anemia in a person who had acute dilatation of the stomach with heart failure, a secondary cause being "anemia haemolytic and dyshaemopoietic " One year prior to his death this person had undergone carbon tetrachloride exposure When scores of investigators consistently deny the occurrence of any significant blood changes in any form of carbon tetrachloride poisoning, then it becomes extraordinary that three fatal cases with profound and somewhat similar signs and symptoms should fall within the services of one physician within a period of five years In medicine, doubt of the extraordinary becomes a virtue.

Two observations become pertinent (1) It does not appear that the author made any workplace investigation to establish with hoped for exactness the substances or substance to which the two industrial workers were exposed The implication is that the three patients indicated that they had been exposed to carbon tetrachloride and such statements led to a diagnostic finality (2) It is well known to industrial toxicologists that carbon tetrachloride is often admixed with other solvents, such as benzene Indeed, in one of Straus's case records the exposure was to a mixture of kerosene with carbon tetrachloride Although kerosene, like carbon tetrachloride, is not known to induce pronounced blood alterations, in that instance there existed equal opportunity to have labeled the aplastic anemia as caused by kerosene But is it not possible that the solvent mixture may also have included an aromatic hydrocarbon? Since there is much scientific evidence opposing them, I shall, until better informed, regard the author's conclusions on the cause in these cases as in need of support

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To the Editor —In the Clinical Notes of THE JOURNAL for June 19, 1954, page 737, Dr Bernard Straus reports three cases of aplastic anemia that he attributes to exposure to carbon tetrachloride His contention is startling to myself and others with whom I have corresponded since the publication of his article If Dr Straus is correct, then Hamilton, Haggard, Henderson, McCord, Kehoe, Princi, Ethel Browning of England, and many others of us in the field of occupational medicine have been most negligent investigators

Out of a large series of patients of my own a great many were hospitalized for study They received routine blood studies In no instance was there any significant anemia In addition to the usual effect on the central nervous system, the findings in those patients who had acute carbon tetrachloride intoxication revealed a fairly high frequency of renal involvement and, to a lesser extent, a hepatorenal syndrome If death did not occur within a period of from few days to two or three weeks, eventual complete recovery took place

Dr Straus correctly intimates that there is a similarity of his cases to cases of intoxication by certain other chemicals, particularly benzol Herein arises a question about his deductions that has occurred to those with whom I have corresponded In each of the three instances he cites, the history given by the patient was apparently accepted as accurate As far as I can read there has been no attempt to verify the history or to positively identify the alleged offending agent In occupational medicine we have learned that this is a grievous error We know that the patient's conception of the chemical nature of his exposure is very often erroneous Very often it is necessary to go to the place of work, examine the environment, and analyze the chemical or chemicals involved I could recite many examples in which, if this had not been done, a faulty assumption would have resulted

Carbon tetrachloride is not a new or recently used industrial solvent Its effect upon the human body has been studied for years and in many countries If it had the property of producing profound anemia it would have been noted long before this by those intimately active in industrial toxicology It is my studied opinion that either the cases cited by Dr Straus were coincidental or the patients were exposed to an unsuspected aromatic hydrocarbon I can be wrong, but until a further investigation is done along this line I would ask that everyone adhere to the clinical entity of carbon tetrachloride intoxication as we have known it

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SCHISTOSOMIASIS JAPONICA

To the Editor —While Wolford and Rumball s recent article on schistosomiasis (*J A M A* 155 1045 [July 17] 1954) served to illustrate one feature of the disease, it failed to include one of the most important facts about the case reported That is, whether the disease was active This problem should be a major concern of every physician who diagnoses or treats schistosomiasis When one realizes that the drugs currently used for treatment are far from innocuous, the significance of activity becomes readily apparent, as this constitutes the only indication for therapy

The detection of active infections in human beings rests, almost solely, on the recognition of *living* ova A simple method has been reported (Newsome, J Recent Investigations into the Treatment of Schistosomiasis by Miracil D in Egypt, *Tr Roy Soc Trop Med & Hyg* 44 611 [June] 1951) and should be used in every case When the rectal biopsy specimen is obtained, it is placed in a small quantity of tap water for 30 minutes prior to microscopic examination In this environment, live miracidia are stimulated to motion (a prerequisite to hatching, of course), and thus their viability can be attested If the specimen is examined immediately after collection, motility is not apparent and the detection of live ova depends on the skill of the microscopist in recognizing flame cells within the shell of the ovum Saline solution will inhibit hatching (Standen, O D The Effects of Temperature, Light and Salinity upon the Hatching of the Ova of Schistosoma Mansoni, *Tr Roy Soc Trop Med & Hyg* 45 225 [Oct] 1951) Dead ova may be distinguished by their discoloration, but this requires some previous experience Eventually some of these, entrapped by fibrosis, may be calcified Those of us who see only an occasional case of schistosomiasis are inclined to be overly anxious to learn the result of biopsy and thus *in haste tend to omit this most important step*

One erroneous statement in the report regarding the appearance of the infected rectal mucosa requires correction In their summary the authors contend that while the mucosal appearance is not characteristic, *it is not normal* This is contrary to personal observation, and Newsome has mentioned that perfectly normal appearing rectal mucosa (as seen through the proctoscope) may be found to contain both live and dead schistosome ova

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To the Editor —On page 1045 of THE JOURNAL of July 17, 1954, included in the report entitled "Schistosomiasis Japonica Untreated Ten Years After Exposure, ' there are two photomicrographs purporting to show schistosomes in rectal tissue and liver tissue obtained by biopsy The structures to which reference is made are ova of schistosomes and not the schistosomes themselves

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REVIEW OF BOOK ON ALLERGY

To the Editor —I would like to call attention of JOURNAL readers to reviews of the book 'The Allergic Child" other than the one published in THE JOURNAL (155 530 [May 29] 1954) I am asking this privilege because the review in THE JOURNAL was diametrically opposed to the majority of reviews, especially to those appearing in allergy journals Two examples of these appear in the *Annals of Allergy* (12 232 [March-April] 1954) and the *Journal of Allergy* (25 384 [July] 1954)

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DE URINA

To the Editor —On reading Dr Smith's historical article, "De Urina" (*J A M A* 155 899 [July 3] 1954) it occurred to me that you might be interested in a delightful and pointed reflection on the *subject* written by a 17th century commentator, Thomas Fuller His book, "The Holy State and the Profane State first published in 1642, contains a chapter, "The Good Physician, ' in which is found the following paragraph

'He trusteth not the single witnesse of the water if better testimony be had For reasons drawn from the urine alone are as brittle as the urinall. Sometimes the water runneth in such post-hast through the sick man's body, it can give no account of anything memorable in the passage, though the most judicious eye examine it Yea, the sick man may be in the state of death, and yet life appear in his stale (Fuller, T The Holy State and the Profane State, edited by M G Walten, New York, Columbia University Press, 1938, vol 2, p 53)

Fuller, an ecclesiastic who wrote on a variety of subjects, seems to be among those who decried medieval uroscopy Even in modern times we occasionally see infants and children suffering from genitourinary tract disease in whom a 'most judicious" examination of the urine fails to reveal abnormalities consistent with the severity of the underlying lesions

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MESENTERIAL LYMPHADENITIS CAUSED BY PASTEURELLA PSEUDOTUBERCULOSIS

To the Editor —In two reports published in 1953 (*Deutsche med Wchnschr* 78 532-535 [April 10] 1953, *Virchows Archiv für pathologische Anatomie* 323 664-684, 1953), Masshoff described the frequent occurrence of a benign, abscess-forming mesenterial lymphadenitis in adolescents which, causing symptoms suggestive of those of acute appendicitis often led to surgical intervention At operation the presence of an abundant and clear peritoneal exudate was noted. Usually the appendix appeared normal, but enlarged lymph nodes were found to be present singly or in groups in the mesenterium, particularly in the ileocecal region In a small number of cases signs of acute gastroenteritis dominated the clinical picture Laboratory studies of the cause of this new syndrome gave the following results

1 In 3 of the 15 cases in which the presence of the above described lymphadenitis had been proved histologically, Pasturella pseudotuberculosis could be isolated from operatively removed lymph nodes 2 The serums of 14 of these patients agglutinated several P pseudotuberculosis strains at titers ranging from 1 200 to 1 3,200 The blood of one of the bacteriologically positive patients was not available for serologic tests. 3 The serums of 220 persons, sent to this laboratory for Wassermann or Widal tests, failed to agglutinate pseudotuberculosis bacilli even at a titer of 1 10 The serums of 48 patients who had been recently operated on for appendicitis also proved negative 4 The serums of 4 persons, sent in for the purpose of Widal tests, agglutinated pseudotuberculosis bacilli at titers ranging from 1 800 to 1 6,400 It was learned that these persons had been recently hospitalized, three of them with signs suggestive of appendicitis which however, soon gave way to symptoms of gastroenteritis and the fourth on account of acute gastroenteritis

The apparently frequent occurrence of benign pseudotuberculosis infection in man deserves the attention of clinicians and laboratory workers A full report on the investigations summarized above will soon appear in *Deutsche medizinische Wochenschrift*

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BUSINESS PRACTICE

THE YOUNG PHYSICIAN'S FINANCIAL FUTURE

Holgar J Johnson, New York

The following article discusses the role of insurance in the planning of physicians savings and investments —ED

Perhaps it is as great a tribute to the medical profession as any to say that the young intern about to go into private practice can look ahead with near certainty to a time schedule that would give pause to many—a time schedule that will all but preclude free time in which to become an investment expert At the same time this young man can expect a higher than average income and larger than average eventual funds, which will need placement He also knows that he will have to do whatever is done for the future of his family and his own later years entirely by himself As are most professional persons, he is completely dependent on his own efforts for every dollar of income, he realizes that there will be little or no continuing income in the event of disability or retirement, and over the years, as he is accumulating funds for his family's protection and his own later years, his needs for protection against financial vicissitudes are probably greater than those of persons in almost any other occupational group Life insurance therefore becomes a matter of keen interest for physicians, young and old

INSURANCE FOR DEBTS

At the outset of his professional career the physician has a greater need for life insurance protection than almost any of his contemporaries, if for no other reason than that physicians often carry an unusually heavy burden of debt when they start This debt stems from the costly, prolonged education and training, the necessity for establishing well-located and sometimes expensive office quarters, the need to accumulate a large amount of equipment and supplies to meet modern practicing requirements, and the need for time to develop a full income from practice Not many can do all this entirely from cash resources, and those who cannot, contract a debt that could become a great burden to the family, should the physician die before it is paid Many a physician has drawn on life insurance even before the day of office opening, having secured his medical training through loans from life insurance policies or loans protected by policies All families have a need for "clean-up" insurance, that is, life insurance set up for the distinct purpose of wiping out debts and outstanding bills, so that the family may pick up from there on its reorganized living This is the first consideration in family protection The average family might find $1,000 or $2,000 sufficient for this purpose, but many physicians would find several times such an amount necessary A sound family program demands that all debts and outstanding bills be covered by life insurance, whatever their amount If a physician has had to borrow to put up his shingle, buy his equipment on credit, purchase a home to house his new office, and stretch his credit to the utmost during those early days of pressure, his "clean-up" aggregate may well come to many thousands of dollars

The young physician is likely to have to meet this greater need out of a relatively small income It may be necessary for him to protect this portion of his needs through inexpensive term insurance, rather than a permanent plan There is a warrantable basis for using term protection for this need, in that much of it is a short-term commitment that may not exist a few years later Convertible term insurance policies can later be changed to permanent plans, as increasing income warrants On the basis of term insurance the physician could probably insure against indebtedness, whatever its amount, for less than 1% annually of the sum total of debts Permanent life insurance, which can be applied to other family needs as soon as the debt load has been removed, would require about two and one half times the premium outlay for the term plan, this would still represent less than 2% annually of the debt total

FAMILY PROTECTION AND INCOME

The young physician will have other insurance needs that depend in amount and nature on his family situation More than likely he will be married, and he may have young children The family protection program thus becomes a first consideration in his financial planning This need does not conform to any rule of thumb, each family situation requires a custom built plan that considers factors such as current income and scale of living, number of years of child dependency, time needed for adjustment to a new program, and the buying capacity of the head of the family Families usually like to have at least one year's income at present levels assured, to give that much time to adjust to any new order of living that may be necessary An income sufficient to keep the family together until the youngest child is old enough that the mother could safely seek employment is a second essential provision After that, an income guarantee throughout the lifetime of the mother is desirable and can be added insofar as the physician can afford to purchase it.

It takes a sizable amount of life insurance to do all these things, but special plans that aid materially in expanding the coverage without a proportionate premium increase are available, for instance, the family income plan can provide an income of $10 per month for each $1,000 of life insurance, to be continued for 10, 15, or 20 years from date of purchase, after which the full face amount of the policy is paid to the widow Thus, a physician whose youngest child is 3 and who wishes to ensure an income of $250 per month until that child is 18 might set up such a plan under a $25,000 policy, this would cost about 25% more than a straight $25,000 policy The plan would provide $250 monthly for the widow until 15 years from date of purchase and then pay the full $25,000 to her, either in cash or in continued income The details of a family income plan are worked out by the physician and his life insurance agent The most satisfactory procedure is for them to draw up a schedule of what is desired and another of the maximum the young physician could put into such protection and then to bring the two figures together Usually some cutting in the desired program is necessary, but no one other than the physician himself can decide which item is to be trimmed and which left intact There is a distinct advantage in planning the full desired program initially, as this may be followed over the years as income increases, since physicians are apt to move fairly rapidly into a higher income bracket once their practice is established, additions of further portions of the program may take place at shortening intervals

Educational Guarantees for Children—Another item in the protection program that many physicians are interested in is the setting up of educational guarantees for their children Because of his own long and expensive educational requirements, the physician is more apt to recognize the value of planning ahead for education than many persons Perhaps he saw some of his classmates leave school because of financial pressures that followed a parent's death Whatever the background, the interest is there An educational guarantee can be included in the family program at a small additional cost Some companies issue special educational policies that provide a monthly payment for the 10 months of each of the four college years, with an additional amount payable at the start of each school term If a medical education is in prospect this would have to be amplified to cover the required postgraduate studies Under most of these plans the payments are made if the parent does not live to make them, it is possible to obtain policies that will

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President Institute of Life Insurance.

provide the college funds whether the policyholder lives or dies, though on that basis the premium would be larger, as it would have to guarantee the full amount of benefits on an endowment basis

RETIREMENT

An important consideration in any physician s financial planning is the creation of a satisfactory retirement program for himself This cannot be done until the family plan is under way, but it should be started as soon as possible if minimal cost is to be secured The physician may well be able to carry on his practice far beyond the usual retirement age, in fact, he may have to make special efforts to check further addition of patients in those later years—but he is also fully conscious of the almost universal need to be able at least to lighten his duties then, if not to retire from all practice. The basis of all saving and investment is the accumulation of funds for the needs of family protection and retirement Hence, life insurance becomes a basic part of the savings and investment programs—activities for which the physician has little time, especially in the early days of his practice Even term insurance becomes a part of the investment planning, in effect, though there is almost no investment element in the policy itself Life insurance has special advantages in that it calls for regular, periodic payment and affords no opportunity to fall behind in investment planning for lack of time It also minimizes the investment problems for the family, should the physician die A retirement program requires relatively large blocks of investment funds, and life insurance can be an invaluable aid in setting up the guarantee for those later years

When considering insurance or annuity plans for retirement, it is well to remember that the basic family life insurance policies all have cash values that will have grown to a large sum by retirement age. This cash value can be used to provide retirement income for the policyholder himself if the protection need for which it was bought no longer exists Straight life insurance policies taken out between ages 25 and 35 have a cash value at age 65 of about 60% of the face amount of the policy, if the policyholder has a $25,000 straight life policy, taken out at age 30, the age 65 cash value would be near $15,000 Specific provisions for retirement income can be made with a wide range of contracts There are straight annuities, some of which can be bought on the single premium basis, some on the annual premium basis, cash refund annuities, which guarantee the return of at least as much as was paid in, although for this extra guarantee the monthly retirement income is somewhat smaller, and policies that combine the retirement feature with life insurance protection, giving a specified amount of protection up to age 55, 60, or 65 and then an income, usually $10 monthly per $1 000 of policy, for life The last type of policy has always been popular with physicians, as it channels many of the investment problems of retirement into one simple insurance plan Although such a plan may not have as big an earning rate as some types of investment, it is guaranteed and safe and takes no time away from the practice for management

In all retirement plans it is well for the policyholder to consider the joint needs of both himself and his wife at retirement age All too often a retirement plan is set up for only the policyholder himself, without provision for income for his wife after he dies A joint and survivor policy or clause would provide income for as long as either lived—at a higher cost, because it is in effect a double annuity The young physician may not be ready to undertake this portion of his life insurance program at the outset The funds for clearing up debts and bills and the provisions for family maintenance are the first requirements but as soon as the practice warrants, the young physician may wish to revise his program to include the retirement plan

TAX PROBLEMS

Another important consideration in the physician s protection program, as his income moves up to significant levels, is the *matter of estate shrinkage The young physician, perhaps still* struggling to establish his practice, probably feels he is far from being an estate owner, but under today s heavy tax load the definition of an estate for tax purposes becomes a reality early in a career Especially is this so for persons like physicians who are operating on a high level of expenses, ownership, and income Take the case of a young physician who owns his office-home, who has set up an adequate life insurance program, and who has acquired some basic personal property Federal estate tax exemption is set at $60,000, and with all items of ownership combined the community property provisions raise the effective exemption to $120,000 for a married man With a home worth perhaps $30,000 to $50,000 and life insurance totaling an even larger amount, he may enter the estate tax bracket at an early date State inheritance taxes often apply to even lower amounts In addition to all this, income taxes must be paid currently on this independent operator s income All of these taxes must be met before any of the other items of family protection can be covered, even if it means a sacrifice sale of property, hence, it is important that the physician at all times keep in mind the growing hazard of estate shrinkage He may cover this with a special life insurance policy, keeping the family program intact as planned Life insurance is better than almost any other medium for making funds available for tax purposes, as it gives the executor immediate cash and obviates any possibility of having to sell part of the estate to meet taxes

CHANGING NEEDS

The most effective procedure in life insurance planning is for the physician to select a life insurance agent in whom he has confidence and then put the family financial case" into his hands just as completely and on just as confidential a basis as do the patients who bring their health problems to him A base program can then be drawn up and an objective plan prepared, and through periodic rechecks the physician can amplify his program to include more and more of the general objective as increasing income permits This periodic check-up is an important part of any life insurance plan Every policyholder should have his program reviewed carefully by his agent every year, if possible—certainly every second year In the earlier years of practice, when changes in basic family situations develop rapidly, the check-up should be made as frequently as possible This does not mean that the policyholder should wait until a calendar date to report a change or seek information about meeting one the purpose of the check-up is to make certain that no change has developed that has not been adequately covered in the plan

Change is one of the great certainties in life This is true of our whole way of life, of our country, of our economy, and of our family and individual life Often these changes affect other parts of our life plans Increased income widened family responsibilities, change of location revisions in the tax program —those are just a few of the many factors that call for changes in the life insurance program Even if no such changes have developed since the last program check by the policyholder and his agent, there may be a great advantage in seeing if time has shifted the viewpoint somewhat, perhaps making some variation in the program details or some addition to the insurance desirable It is important that the life insurance program be kept up-to-date at all times The physician whether young or old should be careful to have these repeated check ups made They cost the policyholder nothing and they may prove highly profitable to the ultimate beneficiaries Life insurance savings investments, and property of any kind all combine to make up the financial planning of the family, even the leading security analysts place life insurance as the primary item for consideration of the family when establishing its financial plan.

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MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Pulseless Disease A Jervell Am Heart J 47 780-784 (May) 1954 [St Louis]

A case of pulseless disease is reported in a woman, who at the onset of the disease was 30 years old Her first symptoms were pain in the chest and breathlessness on effort The chronic vascular disease attacked the patient's vessels that arise from the aortic arch and led to a pronounced narrowing of these vessels This resulted in loss of pulsation in the arteries of the upper extremities with symptoms of ischemia in the right hand and reduction of pulsation in carotid arteries on both sides, with symptoms of cerebral ischemia In addition, signs of aortic incompetence were observed and possibly of aortic stenosis The patient had general symptoms and most strikingly a greatly raised sedimentation rate During the patient's many stays in the hospital, she received several courses of penicillin in large doses She was also treated with chlortetracycline (Aureomycin), corticotropin (ACTH), cortisone, and lastly she was given local roentgen ray treatment for pronounced soreness over the neck vessels None of these treatments had any definite effect

Arterial Hypertension Treated with Rauwolfia Serpentina and Veratrum Viride C Joiner and R Kauntze Lancet 1 1097-1099 (May 29) 1954 [London, England]

Joiner and Kauntze analyze the results of a clinical trial of Rauwolfia serpentina in 24 severely hypertensive patients under treatment with Veratrum viride All patients were given alkavervir (Veriloid) 1 mg per 10 lb (4,536 gm) of body weight in three divided doses daily for a preliminary fortnight and throughout the trial For eight weeks 12 patients (group A) received placebo tablets, and then for the next eight weeks the active substance, 0 5 gm nightly The remaining 12 patients (group B) were given a preparation of Rauwolfia serpentina, 0 5 gm each night for eight weeks and 1 gm nightly for a further eight weeks The patients were allocated to one or the other group at random One of the 24 patients died from malignant hypertension with uremia, and 2 were admitted to the hospital with left ventricular failure One defaulted before the observations were complete, and 2 others were obtaining drugs from other sources One other patient's readings proved so variable as to be unreliable, in yet another such severe pruritus developed that the administration of Rauwolfia serpentina had to be stopped Bradycardia was shown in 6 of the remaining 16 patients Lowered diastolic pressures were demonstrated in six The object was to assess the additive or synergistic effect of Rauwolfia serpentina and not its single action The results so obtained refer only to a small group of patients, and generalization is unjustifiable, yet this group represents the main problem in treatment, the severe or moderately severe, progressive hypertension, in which effective oral therapy is particularly desirable Rauwolfia serpentina in a dosage of 0 5 gm daily induced bradycardia and lowered the diastolic blood pressure in certain hypertensive patients already under treatment with Veratrum viride, but there was no evidence of a striking additive or synergistic action

Electrocardiographic Changes Simulating Recent Myocardial Infarction J A Segal Connecticut M J 18 493-499 (June) 1954 [New Haven, Conn]

There are puzzling cases in which the symptoms appear to be those of recent myocardial infarction and the electrocardiographic findings are indicative of such disease, but which at autopsy reveal patent coronary vessels and no evidence of recent myocardial infarction Because of recent experience with two cases, Segal reviewed the literature and found that others had had similar experiences The first of his patients, a man aged 65, experienced severe pain in the upper abdominal region His serum amylase was over 1,100 units and he had board like rigidity in the upper part of his abdomen The serial electrocardiograms revealed abnormal Q waves, S T elevations and depressions with T wave inversions consistent with a diagnosis of recent myocardial infarction Autopsy showed that the Q waves were due to an old myocardial infarction and the S T and T wave changes were due to a circumscribed area of acute fibrinous pericarditis Death was due to acute hemorrhagic pancreatitis The second patient, aged 80, was at first thought to have acute appendicitis His appendix was removed Some days later pain in the right upper quadrant developed that suggested acute cholecystitis He was operated on for this, and gall stones were found During the acute distress in the upper part of the abdomen there existed electrocardiographic changes consistent with a diagnosis of recent myocardial infarction He later died because of a bleeding duodenal ulcer Autopsy revealed no abnormal cardiac findings These two cases demonstrate that in acute diseases of the upper abdominal region the electrocardiogram may show changes that simulate recent myocardial infarction

Thrombosis of the Portal Vein Demonstrated by Means of Percutaneous Splenic Venography H J J Fesevur and J R von Ronnen Nederl tijdschr geneesk 98 1502-1505 (May 29) 1954 (In Dutch) [Amsterdam, Netherlands]

The case reported not only demonstrates the misleading symptoms that may be caused by hypernephroma but also shows the valuable information that can be provided about the splenoportal circulation by splenophlebography In this method of examination, a water-soluble contrast medium is introduced into the spleen and an informative roentgenogram is obtained of the splenic veins and of the portal vein The observations obtained in the course of the several exposures following introduction of the contrast medium are described and discussed The patient at first seemed to have hepatic cirrhosis, later splenic venography revealed thrombosis of the portal vein, and finally with the aid of intravenous pyelography the real cause of the disorder was proved to be a tumor of the right kidney The authors emphasize the fact that carcinoma of the kidney may be present under a wide variety of symptoms, which frequently lead to an incorrect diagnosis

The After-History of Pulmonary Tuberculosis II Thoracoplasty Ten-Year Follow-Up R Douglass and E B Bosworth Am Rev Tuberc 69 930-939 (June) 1954 [New York]

The authors report on 238 patients with pulmonary tuberculosis who were subjected to thoracoplasty Two hundred five of these had active parenchymal disease for which they were operated on between 1937 and 1947 and were followed through 1950 In 70% of the 205 patients the disease was arrested at the end of 10 years' follow-up Arrest of the disease occurred for the most part by the second anniversary of the thoracoplasty and the incidence of arrests showed little change thereafter Relapses occurred throughout the 10 year period The outlook was poor in the absence of resection Deaths occurred at an almost uniform rate after the initial postoperative period, in the course of which one-sixth of the deaths occurred Approximately one-tenth of the later deaths were due to cor pulmonale

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The place of publication of the periodicals appears in brackets preceding each abstract

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In an additional group of 33 patients with pleural lesions, thoracoplasty was performed because of inexpansible lung in 12, tuberculous empyema in 15, nontuberculous empyema in 3, and mixed empyema in 3 There were no deaths due to tuberculosis, and one patient had exacerbation of contralateral parenchymal disease Two patients in this group died of cor pulmonale

Tuberculous Peritonitis P K. Chatterjee J Indian M A 23 317-324 (May) 1954 (In English) [Calcutta, India]

The author reports on 52 patients with tuberculous peritonitis There were 24 males and 28 females The high incidence of tuberculous peritonitis (54%) in the female patients is significant Most of the female patients were married and in the reproductive age The age incidence of tuberculous peritonitis conformed to the general pattern of tuberculosis morbidity in various age groups, with the highest incidence between 21 and 30 years of age The most frequent symptoms were fever (40 patients), wasting (30 patients), and abdominal pain (29 patients) The most characteristic sign in 36 patients (69 2%) was the presence of lumps in the abdomen The lumps were either discrete and well defined (suggesting enlarged mesenteric lymph nodes) or vague, irregular, and ill-defined masses that suggested matted mesentery and intestinal coils Active tuberculous lesions in the lungs and pleura were observed in 21 patients Direct spread through ingestion sputum may have occurred in 17 patients with active tuberculous lesions in the lungs The high incidence of widespread lymph node involvement suggested that in many patients peritonitis was the result of a progressive postprimary disease due to hematogenous dissemination Presence of free fluid, abdominal pain and lumps or masses, particularly around the umbilicus, were considered characteristic and offered aid in diagnosis When these were associated with fever, anemia, and wasting diagnosis was highly probable Presence of pulmonary tuberculous lesions or involvement of lymph nodes made the diagnosis almost certain Roentgen examination of the intestinal tract after a barium meal was of considerable help in differential diagnosis from ileocecal tuberculosis or regional ileitis Immediate results of treatment are reported in 30 of the 52 patients, 16 of the 30 patients were given 1 gm of streptomycin in two injections daily for one to two months Fourteen patients were given 1 gm of streptomycin and 10 to 12 gm of *p*-aminosalicylic acid daily for six weeks to four and a half months Temperature was promptly controlled Relief of abdominal pain and diarrhea and improvement in appetite were also promptly effected Patients gained weight rapidly Effect on abdominal masses was striking and even large masses were observed to resolve completely Absorption of peritoneal fluid also occurred In patients with large ascites, improvement did not occurr so rapidly, and in some paracentesis had to be used Twenty-one (70%) of the 30 patients showed considerable improvement, and an additional 5 patients (16 7%) showed improvement but were not completely free from all signs and symptoms Eighteen of the 52 patients were followed for 12 to 18 months, of these 18 patients, 10 clinically showed arrest of the disease and 4 had a recurrence of the abdominal condition within 3 to 12 months One patient died after 18 months, and another still has some signs and symptoms at the end of the 11th month Arrest of the disease may be obtained in most patients provided they are not in an advanced stage with extensive pulmonary disease, by a course of specific treatment with streptomycin and *p*-aminosalicylic acid for four to six weeks combined with rest in bed and general treatment followed by adequate aftercare and treatment of pulmonary or other lesions Although streptomycin alone gives satisfactory results, it is preferable to combine it with *p* aminosalicylic acid because of the risk of streptomycin resistance

Epidemic Hemorrhagic Fever E. DeCoursey Wisconsin M J 53 325-328 (June) 1954 [Madison, Wis]

Epidemic hemorrhagic fever was practically unknown to western medicine before 1951, when outbreaks occurred in United Nations troops in Korea but by the summer of 1953 there had been approximately 2 000 cases among United States forces with about 120 deaths The disease is often referred to as EHF The cause of epidemic hemorrhagic fever is uncertain Some evidence implicates a filterable virus as the causative agent, a trombiculid mite as the vector and a rodent as the reservoir The basic pathological change is increased vascular permeability with edema, serous transudate and hemorrhages The kidneys, pituitary, adrenals, heart, and gastrointestinal tract are principally involved Medullary hemorrhages and necroses give a characteristic renal picture, the EHF kidney" Mononuclear infiltrations appear in the heart, spleen, and lymph nodes Epidemic hemorrhagic fever is characterized by the sudden onset of a mild to severe influenza-like syndrome that progresses through febrile, hypotensive, oliguric, diuretic, and convalescent phases The diagnosis is entertained in a febrile patient who has recently been in Korea and who shows hematopoietic, renal, and cardiovascular involvement Combined urinary and hematological laboratory findings are strongly suggestive, and proteinuria is necessary for confirmation of the diagnosis

Treatment of Chronic Pulmonary Emphysema M S Segal, A Salomon and J A. Herschfus Am. Rev Tuberc 69 915-929 (June) 1954 [New York]

Correlation of certain phases of management of the patient with chronic pulmonary emphysema with the knowledge of its physiopathology was attempted A decreased vital capacity, a small inspiratory capacity, an enlarged functional residual capacity and residual volume, a slight increase of the timed vital capacity, a significantly increased ratio of the residual volume to the total lung capacity, and a seriously disturbed ventilation were the basic defects demonstrated by pulmonary function studies in the patient with chronic emphysema Continuous preventive measures to control and improve these abnormal findings should be employed The experiences of the authors with several therapeutic measures in the treatment of chronic pulmonary emphysema and complicating manifestations were described, namely, antihistaminic preparations, such as a solution of diphenhydramine, ammonium chloride, sodium citrate, chloroform and menthol (Benylin expectorant) or tripelennamine (Pyribenzamine expectorant) hydrochloride, aminophylline, expectorant mixtures antibiotics such as penicillin, streptomycin, or oxytetracycline (Terramycin), aerosols of bronchodilators, water or preferably a nontoxic proprietary detergent (Alevaire) used as humidifiers, enzyme aerosols such as pancreatic desoxyribonuclease (Pancreatic Dornase), corticotropin and cortisone, the use of venesection digitalis, and the mercurials The general principles were outlined for the use of oxygen, intermittent positive pressure breathing in inspiration, and continuous aerosol therapy The combined use of bronchodilator aerosols with intermittent positive pressure breathing in inspiration was described for the routine treatment of chronic pulmonary emphysema The use of alternating positive negative pressure breathing (exsufflation) proved of considerable value for the evacuation of bronchial secretions when other therapeutic agents failed The hazard of the carbon dioxide intoxication syndrome and respiratory acidosis is always present in patients with chronic hypoxia secondary to chronic pulmonary emphysema or chronic pulmonary heart disease particularly if respiratory-depressing drugs are administered preceding or along with the administration of high concentrations of oxygen The prevention and management of respiratory acidosis was discussed The principal indications and the use of breathing exercises, pneumoperitoneum therapy, and various forms of mechanical respiration were presented

Cortisone and Combined Antibiotic Therapy of Acute Brucellosis Melitensis. G B Magill J H. Killough and S I Said Am J Med 16 810-817 (June) 1954 [New York]

Cortisone was given to 48 patients with acute brucellosis, 46 of whom had not received previous therapy and 2 had relapsed from short courses of a single antibiotic Blood cultures were positive for Brucella melitensis in 43 (90%) All 48 patients received oxytetracycline (Terramycin) at four hour intervals in daily doses of 3 gm for the first week and 1.5 gm for the subsequent two weeks In addition to oxytetracycline dihydrostreptomycin was administered intramuscularly in daily doses of 1 gm for the entire three week period Twenty four patients were given a total dose of 0 4 to 1 gm of cortisone during the first three to seven days of antibiotic therapy only Twenty two of these received 0.3 gm of cortisone on the first day 0.2 gm on the second and 0 1 gm on subsequent days The other two patients received 0 1 gm of cortisone daily The second group of 24 patients received the hormone during the entire three week period of treatment with antibiotics, cortisone was administered at 12 hour intervals and the daily dose consisted of 0 1 gm the first week and 0 05 gm the second and third weeks, with a total dose of 1 4 gm Twenty-two patients with brucellosis who had been treated with oxytetracycline (Terramycin) and streptomycin for three weeks were used as controls Clinical response to the combined hormone-antibiotic therapy was rapid and at times dramatic Patients became afebrile within an average of 22 hours after institution of the treatment as compared to 4 6 days in the control group who did not receive cortisone Herxheimer-like exacerbations of fever or symptoms occurred in 8 (17%) of the 48 patients, as compared to their occurrence in 12 (55%) of the 22 control patients Although relapse rates appeared to be higher in patients receiving cortisone for one to three weeks (5 [29%] of 17 patients and 8 [33%] of 24 patients) than in those who received cortisone for only four days or not at all (4 [18%] of 22 patients or 1 [14%] of 7 patients), the differences were not statistically significant Brucella agglutination titers appeared to be depressed by the cortisone therapy Occasional major side effects of cortisone therapy (manic psychosis in a 50-year-old woman, the occurrence of a cavity in a previously noted, limited area of pulmonary infiltration, moderate gynecomastia in an 18-year-old boy, and generalized anasarca in a 40-year-old man with cor pulmonale) militate against its general use in brucellosis The possible effects of lowering host resistance or causing more frequent relapses weigh against the use of cortisone alone or for long periods even with antibiotic therapy Its dramatic effect in alleviating toxemia, however, makes the discriminate use of cortisone a helpful adjunct during the first four or five days of specific antibiotic therapy of acute brucellosis

SURGERY

Cor Triatriatum A Rare Malformation of the Heart, Probably Amenable to Surgery, Report of a Case, with Review of Literature A Pedersen and F Therkelsen Am Heart J 47 676-691 (May) 1954 [St Louis]

Cor triatriatum, a rare congenital malformation of the heart, in which a transverse septum stretches across the left atrium, separating the opening of the pulmonary veins from the mitral orifice, is reported in a 29-year-old woman The patient had a history of increasing cardiac distress No murmur could be heard The heart was not enlarged, but a prominent second left arch and pulmonary congestion were observed in the roentgenogram The lower lobe of the left lung was pronouncedly emphysematous An electrocardiogram showed right ventricular hypertrophy On heart catheterization, an excessive pulmonary hypertension was found, and the pulmonary "capillary pressure," too, was high A mitral disease, therefore, was suggested, and the patient submitted to surgical intervention Thoracotomy revealed a normal mitral valve, and a normal pressure in the left atrium was measured directly Postoperatively, the patient had increasing dyspnea and cyanosis and died on the ninth day after surgery Necropsy revealed a transverse septum with only one small perforation separating the opening of the pulmonary veins from the rest of the atrium Reports of 62 cases of anomalous cords or septums within the left atrium were collected from the literature Thin cords or even broad bands across the lumen were of no significance The real cor triatriatum, however, was a serious disorder Many of the patients died shortly after birth, and only a few reached the adult age The clinical symptoms and signs were not characteristic, and diagnostic help was not obtained from the usually employed investigations, such as auscultation, electrocardiography, and roentgenography An in vivo diagnosis, therefore, must be left for an exploratory thoracotomy Regarding the possibility of a successful surgical interference, this disorder, even if rare, should be taken into consideration in obscure cases of pulmonary hypertension, especially when a high "pulmonary capillary pressure" has been measured After cardiotomy, a direct digital exploration of the anomalous structure would afford the necessary details It should be kept in mind that with the usually employed approach through the auricular appendage the exploring finger will enter in front of the diaphragm and directly on the normal mitral valve, as actually happened in the authors' case As the diaphragm was often funnel shaped in the direction of the blood stream, the way of entrance through a pulmonary vein should possibly be preferred in such case The splitting of the anomalous structure by finger fracture or by cutting instruments should be made as complete as possible, as there is here no valvular function to preserve

Surgical Diseases of the Pulmonary Artery Central Aneurysms, Arteriovenous Fistulas, and Peripheral Aneurysms D H Watkins and F R Harper Am Surgeon 20 602 618 (June) 1954 [Atlanta, Ga]

Two cases of central aneurysm of the pulmonary artery are reported in a 47-year-old man and in a 64-year-old man, respectively It was possible to mobilize the aneurysm in the younger man and wrap it with a strip of reactive cellophane The aneurysm in the other patient was so large and so adherent to the surrounding structures that any definite therapy was impossible The production of a benign bronchial stricture by external pressure of the aneurysm with resulting chronic obstructive pneumonitis was noted Central aneurysms of the pulmonary artery are uncommon lesions They produce death by heart failure and less commonly by rupture From the standpoint of differential diagnosis they must be distinguished from mediastinal nonvascular masses Recognition of associated cardiac lesions is important The occurrence of pulmonary arteriovenous fistulas is reported in two men aged 42 and 64 years A lobectomy of the left lower lobe was done in the younger man who had multiple pulmonary arteriovenous fistulas associated with other manifestations of hereditary hemorrhagic telangiectasis (Osler's disease) Half of the cases of arteriovenous fistula show evidence of Osler's disease Roentgenographic examination of the other patient showed a coarsely lobulated mass measuring about 4 cm in diameter in the right midlung field intimately associated with large vessels coursing downwards from the right hilum The impression from this examination was an arteriovenous aneurysm in the right midlung field and moderately bilateral emphysema, this impression was confirmed by angiocardiography Surgical intervention was not performed because of the patient's age and emphysema Pulmonary arteriovenous fistulas are commoner than central aneurysms and must be distinguished from round, parenchymal pulmonary lesions A significant incidence of serious or even fatal complications in untreated patients (hemoptysis, hemothorax, bacterial endocarditis, brain abscess, thrombosis associated with polycythemia) leads the authors to recommend surgical measures except in patients of advanced age, in those seriously ill of unrelated disease, and in those who have widely distributed lesions Surgical resection should be only as extensive as necessary to extirpate the lesion Simple ligation of the supplying vessels is not recommended because of numerous collateral vessels Simple aneurysms of the peripheral branches of the pulmonary artery are rare lesions The most frequent starting point is ulcerative endocarditis Operation is usually impossible because of the severity of the underlying disease.

NEUROLOGY & PSYCHIATRY

Intellectual and Affective Changes in Essential Hypertension. R M Reitan Am J Psychiat 110 817-824 (May) 1954 [Baltimore]

The Rorschach test was administered to patients with neurosis, with organic brain damage, and with essential hypertension Intergroup statistical comparisons were made of the mean values on each of the Rorschach variables The relative frequencies of Rorschach "signs" or organic cerebral damage in the three groups were compared using the chi-square technique The results indicate that the mean scores of the hypertensive group consistently fall between those of the other two groups A review of the protocols in the three groups indicates a considerable amount of neurotic symptomatology in each group, but confirms the quantitative results that indicated intellectual impairment caused by organic brain damage in some of the patients with essential hypertension

Initial Masking of Organic Brain Changes by Psychic Symptoms Clinical and Electroencephalographic Studies R. W Waggoner and B K. Bagchi Am J Psychiat. 110 904-910 (June) 1954 [Baltimore]

Waggoner and Bagchi emphasize that brain tumors may exist in patients whose symptoms are primarily mental The psychiatrist should be ' brain tumor conscious," because if the patients who do have brain tumors were recognized sufficiently early unnecessary or prolonged therapeutic procedures or custodial care could be avoided and the way cleared for early surgical treatment Certainly the presence of a brain tumor should be recognized before the use of potentially dangerous therapeutic procedures, such as electroshock It is not only difficult to recognize the presence of a brain tumor, but its localization also is difficult in the presence of mental symptoms Hence any procedure that will enable the psychiatrist or neurologist to make an earlier diagnosis of a focal lesion should be utilized, particularly if this procedure does not involve any risk or cause any pain to the patient The authors present here six patients in whom the electroencephalogram was of particular help in early diagnosis In all, the diagnosis of a focal lesion was either positively indicated or suggested by this procedure The authors believe that if a routine electroencephalographic study were done on all patients admitted to state hospitals, an indication of focal lesion might be found in many In such patients, a localizing study should be carried out In this way, it is entirely possible that a considerable number of brain tumors would be recognized early Even if only a small percentage of mental hospital patients were found to have brain tumors and some of these were relieved by operation, the time and expense of the electroencephalographic examination would be an excellent investment

The Specificity of the Complement Fixation Test in Poliomyelitis F L. Black and J L Melnick Yale J Biol & Med 26 385-393 (April) 1954 [New Haven, Conn]

Black and Melnick point out that infection with poliomyelitis virus gives rise to complement-fixing antibodies that may be detected with antigens prepared either from the brains of infected mice or from tissue culture fluids Previous investigators (Casals, Svedmyr) used sufficient antigen in each test to obtain maximum sensitivity With this antigen concentration the presence of antibody could generally be detected within the first week after onset of the disease, but the serums usually gave similar complement fixing titers against antigens of the three types of poliomyelitis virus regardless of the type involved in the infection The authors describe a complement fixation test for poliomyelitis that uses minimal quantities of complement and antigen They employed it in two types of investigations serodiagnosis of infection and antibody response to vaccination Tests for complement antibodies for three types of virus were made on specimens obtained from 49 poliomyelitis patients A homotypic complement fixing titer rise was found in 90% of the patients from whom virus was isolated, and a heterotypic rise in 10% Serums from 30 children were tested for complement fixing antibodies before and after inoculation with 40% formaldehyde solution (Formalin) inactivated type 1 virus Eighteen of these children showed a postinoculation increase in type 1, 2, or 3 antibodies Some showed complement fixing responses to antibodies of more than one type Nearly all of the increases occurred in persons who possessed preinoculation neutralizing antibodies

GYNECOLOGY & OBSTETRICS

Endometriosis of Navel J M Mainetti and J A Triaca Sem med 61 540 546 (May 6) 1954 (In Spanish) [Buenos Aires, Argentina]

A married woman 35 years old complained of painful menstruation She also complained about moderate dyspareunia and pelvic pain before and during menstruation Her only child is a normal child 5 years old, who was born by cesarean section The patient had a nodular purple tumor of the navel which increased in size during menstruation was painful before and during menstruation and painless in the intermenstrual period After the cesarean section, pain became more acute and diffuse, the tumor increased in size and became ulcerated, and a menstrual fistula, which bleeds during menstruation, opened The diagnosis was based on the symptoms and the character of the pain and of the tumor It was confirmed by histological study of the removed tumor The operation consisted of omphalectomy, laparotomy in search of further foci of endometriosis in the internal genital organs and in the peritoneal cavity right adnexectomy left salpyngectomy, and almost total resection of the left ovary to remove left tubo-ovarian endometriosis The scar of the previous cesarean section was removed during omphalectomy The authors advise administration of large doses of estrogen or progesterone, or androgens in cases of difficult diagnosis of endometriosis of the navel The symptoms of umbilical endometriosis increase after administration of the former substances and diminish after administration of the latter The differential diagnosis is from angioma and melanosarcoma

Hydatid Mole and Chorionepithelioma A Five Year Survey of Cases in Three Phoenix Hospitals from 1947 to 1952 H A Siegal Arizona Med 2 205-212 (June) 1954 [Phoenix, Ariz.]

Siegal reviews observations on 19 patients with hydatid mole two of whom had chorionepithelioma These cases occurred between 1947 and 1952 at several hospitals in Phoenix, Ariz., at which 30,659 deliveries took place There was one case of mole in 1,614 deliveries and one case of chorionepithelioma in 15,329 deliveries The author feels that the occurrence of signs and symptoms of spontaneous abortion during the fourth and fifth month of pregnancy should lead one to suspect the possibility of hydatid mole, as it appears that the abortion of a mole occurs at a later date in pregnancy than that of the average nonmolar abortion Hydatid mole should not be ruled out simply because the uterus is not larger than the corresponding period of amenorrhea would justify In nearly two-thirds of the cases in this series the uterus was smaller or of corresponding size In molar degeneration, the longer the duration of pregnancy the smaller the uterus appears in relation to the period of amenorrhea The occurrence of toxemic manifestations during the early months of pregnancy might serve as an indicator that an abnormal pregnancy or mole exists Dilatation and curettage immediately after expulsion or removal of a mole leads to a more satisfactory recovery with a lower incidence of recurrent vaginal bleeding Cases of spontaneous abortion, especially those in which a fetus and secundines have not been identified should be followed by curettage, so that hydatid mole, not clinically evident, can be detected and the patients treated accordingly Persistent bleeding after molar expulsion calls for diligent search for possible chorionepithelioma Greater reliance should be placed on the biological pregnancy tests especially with a gradually increasing titer Abdominal hysterotomy seems the best approach in a patien with mole at age 35 or beyond Hysterectomy may be advisable depending on associated factors A course of deep x ray therapy seems advisable following extirpative surgery for chorionepithelioma and biological tests at monthly intervals would appear to be in the best interest of the patient The author feels that insufficient reliance is placed on biological pregnancy tests both in attempts to establish the diagnosis in suspected cases of mole as well as in the follow-up

PEDIATRICS

Corticotropin in Rheumatic Carditis: Beneficial Effects of High Dosage and Short Duration in Acute Exacerbations of Chronic Rheumatic Carditis. N M Greenstein A M A Am J Dis. Child 87 694-701 (June) 1954 [Chicago]

Twenty-eight children with acute rheumatic fever, ranging in age from 6 to 11 years, were treated with large doses of corticotropin at the Morrisania City Hospital and were observed from March 1951 through August 1953 There were 20 girls and 8 boys Seven had at least two previous attacks of rheumatic fever Fifteen had one attack and in six there was no definite history All 28 had mitral insufficiency in 16 it was associated with mitral stenosis, and 3 also had aortic insufficiency All except five revealed fluoroscopic evidence of cardiac enlargement involving one or more chambers Of the five children with normal heart outline, two had both mitral stenosis and insufficiency the other three showed only mitral insufficiency Each patient was observed for one to seven days before the introduction of corticotropin in order to establish beyond question the diagnosis of rheumatic fever and activity The children were treated with 300 mg per day of corticotropin, intramuscularly, for a period of 14 to 18 days All except one of the children responded to this treatment No significant rebound phenomena or flare-up of rheumatic activity took place on the abrupt cessation of therapy A small number of mild side effects occurred Certain characteristic changes in the cardiac silhouette developed during treatment A follow-up period of 12 to 30 months revealed no increase in the size of the various heart chambers, suggesting that progressive rheumatic activity had been checked or prevented Complicating, severe liver disease is regarded as the cause of failure in the one patient who did not respond to three courses of corticotropin therapy

Serum Vitamin A and Carotene Levels in Children with Rheumatic Fever P Wang, H L Glass, L Goldenberg and others A M A Am J Dis Child 87 659-672 (June) 1954 [Chicago]

The nutrition of children in whom rheumatic fever develops has attracted considerable attention, but it has not been explained whether or how suboptimal nutrition, acting in conjunction with other adverse living conditions, such as poor housing, overcrowding, repeated exposures to infections, and less protection from physical and emotional stresses, increases the susceptibility and modifies the response to the disease In the present study, values of serum vitamin A and carotene were determined in a group of children with rheumatic fever The effects of diet, of intercurrent infections, and of exacerbations of the rheumatic process, the severity of heart damage, the presence of decompensation, and the effect of the administration of corticotropin (ACTH) on plasma levels of vitamin A and carotene were studied The rates of absorption and excretion of vitamin A after ingestion of a large test dose were also investigated The group studied included patients in the acute stage, in the period of gradual convalescence, and, also, patients with inactive disease observed in the outpatient clinic The authors feel that the diet of the child with rheumatic fever should be supplemented with 3,000 to 5,000 I U of vitamin A During the acute stage, the need for supplementation is greater, as the child's nutritional intake is often limited during this phase of the disease High normal values were observed more consistently during the subacute and inactive stages of the disease when vitamin A intake was ample The aqueous preparation was found to be absorbed more rapidly No indication was found for giving large amounts of vitamin A, and it is advisable to keep in mind that fat-soluble vitamins are stored in the body and that large amounts taken over a period of time can be toxic The serum vitamin A level of rheumatic children is found to be decreased under the following conditions (*a*) during the acute and early subacute stages of the disease, (*b*) in patients with severe cardiac damage with passive congestion of the liver, (*c*) during intercurrent upper respiratory infections, (*d*) in patients with acute exacerbation of rheumatic processes, and (*e*) in patients with an inadequate vitamin A and carotene intake of some duration Corticotropin and cortisone profoundly affect the levels of serum vitamin A and carotene during the various stages of active rheumatic fever With a few exceptions, vitamin A, either in aqueous or oily medium, was well absorbed by children in varying stages of rheumatic fever There is no evidence that children with rheumatic fever have a higher vitamin A requirement than normal children

Neoplasia in Children Neuroblastoma M Salas M Bol méd Hosp inf 11 119-142 (April 1) 1954 (In Spanish) [Mexico, D F, Mexico]

During the last 10 years 16 cases of neuroblastoma in children were observed at the Hospital Infantil of Mexico City There were 12 boys and 4 girls Most of the patients were between the ages of 1 and 3 years The period of evolution of the disease before admission to the hospital varied between two weeks and eight months In most of the patients the first symptom of the disease was the appearance of the tumor In the remaining patients the symptoms consisted of abdominal pain, enlargement of the inguinal lymph nodes, blindness, neurological disorders, and fracture of the ribs The tumor was located in the adrenals in 12 patients (bilaterally in three), in the retromediastinal or retroperitoneal lymph nodes in three and in the orbit in one Multiple metastases were observed in all cases, they were enormous in some The clinical diagnosis was Wilms's tumor in six patients, neuroblastoma in five, and Hodgkin's disease, hepatoma, sarcoma, glioblastoma, and abdominal tumor in one patient each Surgical treatment failed, and the postoperative period was stormy Twelve patients died six probably from operative shock, one each from operative hemorrhage and diffuse peritonitis, three from massive metastases to the lungs, the brain, and the liver, respectively, and one from bronchopneumonia The period of evolution from the start of the symptoms to a fatal outcome was between 2 weeks and 11½ months

THERAPEUTICS

Experiences with the Use of 10 Per Cent Aqueous Phenol for Chemical Sympathectomy Preliminary Report E Miles and J S Rothman Am J Surg 87 830-838 (June) 1954 [New York]

Impressed by the encouraging results obtained by Haxton and Boyd in a large number of patients, Miles and Rothman employed 10% aqueous phenol for chemical sympathectomy in 9 men and 2 women with vascular disorders of more than 10 years' duration in the lower extremities (17 limbs) Ten patients had arteriosclerosis obliterans and one had chronic thrombophlebitis All were either bedridden or almost entirely confined to their homes With few exceptions they had all received for years a large variety of drugs orally or parenterally without benefit Most of them had serious medical complications of long duration, namely, hypertension, coronary disease, and diabetes mellitus The preliminary report by the authors of the results of treatment obtained in the 11 patients confirms almost entirely the original observations by Haxton and Boyd, i e, effective and sustained interruption of lumbar sympathetic outflow could be achieved in most patients so treated Eight of the 11 patients were improved with sustained elevations of skin temperature of the feet and legs from one to seven degrees Fahrenheit, improved walking ability sustained over six months or more, favorable effects on claudication and resting pain, and 80% diminution of swelling in chronic venous insufficiency The method is safe and free from serious reactions or painful sequelae when careful technique is practiced The comparatively simple procedure entailed and the almost entire absence of side-effects should merit further application of this treatment to patients aged over 60 or to those who are surgically poor risks It is especially indicated for acute closure of peripheral vessels in advanced arteriosclerotics, in whom it may often prove limb saving In terms of complete cure, one must admit the inadequacy of all therapies currently available, including the surgical

Study of an Alkaloid of "Rauwolfia Serpentina" in the Treatment of Arterial Hypertension R Herbeuval, G Cuny, M Manciaux and R Guidat Presse méd 62 759-760 (May 19) 1954 (In French) [Paris, France]

The authors used reserpine, one of the alkaloids of Rauwolfia serpentina, in the treatment of 35 hypertensive patients In the 5 whose disease was of renal origin, the drug was a therapeutic failure, but among the other 30, it was effective in 3 out of 5 patients with grade 1 hypertension (60%), in 6 out of 11 with grade 2 hypertension (54%), and in 6 out of 14 with grade 3 hypertension (43%) Reserpine brought about a considerable fall in both peripheral and retinal pressure (but more in the latter), plus the diminution or disappearance of subjective symptoms, a general calming, and a regularization of cardiac rhythm The treatment is a prolonged one, all patients were treated for at least two months, since it takes at least one month for the blood pressure, which falls substantially directly after treatment is instituted and rises progressively after this initial drop, to level off at about the same figure as existed in the first place, or at a significantly lower one At this point, success or failure is adjudged, and the decision made as to whether or not to continue treatment Some side-effects from the drug were noted—asthenia, dry throat and nasal congestion, edema of the legs, breathlessness, and diarrhea—but it had no toxicity in therapeutic doses Reserpine possesses a marked neurosedative effect. The authors' impression, from a few cases in which they used combined treatment, is that this drug is a complement to the hydrazinophthalazines and that therapy with both substances is more effective than with either one alone

Combined Use of Placenta Extract and Vitamins A and D in Local Treatment of Ulcers Caused by Altered Trophism A Montagnini and U Spagnoli Prog. med 10 229-234 (April 30) 1954 (In Italian) [Naples, Italy]

An ointment containing placenta extract and vitamins A and D (Histoplac) was used to treat 18 patients with ulcers of the lower extremities caused by altered trophism The lesion was first cleansed with compresses of disinfecting solutions for from 2 to 10 days, then the ointment was applied, and the area was closed with a plaster or bandage The medication was changed every two or three days depending on the quantity of secretion from the wound On removing the plaster or bandage, the base of the ulcer displayed marked granulation It was touched up with a silver nitrate pencil before the medicament was applied again To better evaluate the effectiveness of the new product, comparative studies were made with other ointments, with or without vitamins, which were applied in the same way on ulcers other than those of the legs in the same patients or in other patients with lesions analogous to those of these patients The results were good Twelve patients were cured in a short time while still hospitalized, two were discharged much improved, and, when they were seen a few days later, they were also cured, and the other four were improved, but the late result is not known Unlike the other ointments the treatment influenced markedly the pain This was attenuated in all patients and sometimes disappeared in 24 to 48 hours The granulation process was rapid and the epithelization was also stimulated The authors ascribe the good effects on pain and the granulation process to the placental extract and those of epithelization to the vitamins

ANESTHESIA

Experiences with 1,2,3 Tri (Diethylaminoethoxy) Benzene Triethyliodide (Flaxedil) in Major Surgery G Scherer Deutsche med Wchnschr 79 612 615 (April 16) 1954 (In German) [Stuttgart, Germany]

Major surgical interventions on the trunk and the extremities, thoracic and thoracicoabdominal operations, gastrectomies, choledochal operations excisions of colon and rectum, prostatectomy, and other urologic operations were performed with the aid of combined anesthesia on 438 patients between the ages of 14 and 82 Premedication was employed with morphine (0 02 gm) and atropine (0 5 mg) in divided doses, two hours and one hour before the operation Anesthesia was induced by intravenous injections of 3 to 4 cc of one of the barbiturates With the cannula still in place or by using the continuous intravenous instillation, 20 to 40 mg of gallamine triethiodide (Flaxedil) was injected Anesthesia then was continued after intubation, with a mixture of nitrous oxide and oxygen, with or without addition of ether, or with long acting barbiturates Relaxation of muscles produced by gallamine triethiodide was greatest within four to five minutes, and intubation could be carried out 45 seconds after the injection Relaxation of muscles of 20 minutes duration was obtained with 40 mg of gallamine After 20 minutes a second injection of 20 mg of gallamine (40 mg were used only in very strong patients) was given and the duration of its action was again 20 minutes The effect of the drug was sufficient for 30 minutes on repeated injections Repeated doses should therefore, be given according to the effect of the drug rather than to time and that particularly in patients with impaired kidneys Doses of 20 to 40 mg of gallamine triethiodide were sufficient to obtain relaxation of the muscles of the abdomen and of the extremities There were less undesirable side-effects with gallamine than with natural curarizing agents Considerable variations of blood pressure were not observed, but a temporary increase of pulse rate (20 beats on the average) occurred in 25% of the patients Liberation of histamine was reduced to one-half or even to one fifth of that observed with natural curarizing agents The effect of gallamine triethiodide can be rapidly and safely controlled with neostigmine but, with careful dosage of gallamine, neostigmine can be omitted

Neurological Complications of Spinal Anesthesia A Statistical Study of More Than 10,000 Consecutive Cases M S Sadove and M J Levin Illinois M J 105 169-174 (April) 1954 [Chicago]

A four year study of 10,166 consecutive spinal anesthesias done at a veterans' hospital during the years 1948 to 1951 revealed 18 cases of neurological complications that had some possible connection with spinal anesthesia Five cases, which are reported in detail, represent conditions frequently blamed as sequelae of spinal anesthesia When they were carefully analyzed, it was found that they either existed prior to anesthesia and were not aggravated thereby or were completely unrelated to anesthesia The point is made that it is often an error to give such patients spinal anesthesia a thorough neurological examination must be made before the type of anesthesia is decided on. The other 13 complications fell into five general categories including 4 cerebrovascular accidents, 3 cases of cardiac arrest, 3 persistent headaches lasting one week or more 2 cases of chronic backache, and one benign aseptic meningitis These findings represent the experience of a group of average training in a well-conducted hospital using careful techniques No attempt is made to draw any conclusions from these data. It is felt, however, that the neurological sequelae of spinal anesthesia are not of sufficient magnitude to warrant the indictments of this anesthetic technique that have been made by those who are opposed to its use, provided results similar to the ones reported here are consistently obtained The authors experience has been that the morbidity and mortality of spinal anesthesia compares favorably with those of other anesthetic techniques

Management of Pain of Malignant Disease with Nerve Blocks. J J Bonica. Anesthesiology 15 134-145 (March) and 15 280-301 (May) 1954 [Philadelphia]

Bonica practiced nerve blocks on 194 patients with intractable pain caused by neoplastic disease Narcotic analgesics, cobra venom, intravenous administration of alcohol and non-narcotic analgesics, particularly acetylsalicylic acid, when combined with hypnotics are valuable in the initial mild pain of cancer Later, when pain becomes persistent, the use of narcotic analgesics is again helpful Unfortunately, their effectiveness and ease of administration are conductive to improper use The practice to "snow the patient under because the end is inevitable" denotes lack of understanding. Since it is difficult to estimate the length of life, there may be premature addiction with stupefaction respiratory depression headache anorexia nausea, vomiting, and cachexia Because tolerance develops the patient may not obtain adequate relief in the late stages of cancer when comfort is so essential Bonica believes that if the patient is in good physical condition neurosurgical operation should be employed to insure prolonged relief Rhizotomy, sympathectomy spinothalamic chordotomy in the upper spinal cord or brain stem, and prefrontal lobotomy relieve intractable pain effectively These operations impose mental physical and financial burdens and may cause serious complications and occasionally result in failure Nerve blocks are primarily indicated for patients who are unsuited or unwilling to undergo surgical procedures For pain of the face, mouth tongue, throat, and neck injections of alcohol into the trigeminal nerve or its branches, the glossopharyngeal and vagus nerves and/or the upper cervical spinal nerves are usually very effective Pain below the neck can be controlled for weeks or months with subarachnoid alcohol block, paravertebral block or injections into the peripheral or intercostal nerves Since the sympathetic nervous system is often involved in the pain mechanism, sympathetic nerve blocks may be necessary to control the pain completely Of the 194 patients with severe cancer pain treated with analgesic block, 52 7% obtained complete relief 33 5% partial relief, and the remainder obtained minimal or no relief Minor complications occurred in 21 1% of the patients and serious complications in 14 9% These complications included corneal ulcers in 4, unilateral masticatory weakness in 22 weakness or paralysis of extremities in 26 bladder or rectal dysfunction in 12, alcoholic neuritis in 7, and orthostatic hypotension in 1

Controlled Hypotension During Surgery H H Stone Maryland M J 3 163-166 (April) 1954 [Baltimore]

Stone points out that interest in controlled hypotension during surgery was renewed after World War II, partly due to the increase in the extensive types of surgical resections Some induced hypotension by removing blood from the patient and reintroducing it subsequently Others produced hypotension by the use of spinal anesthesia In 1948 with the introduction of a group of drugs with potent autonomic ganglionic blocking properties known as the methonium compounds, hypotension could be produced without the cumbersome technique of spinal anesthesia or the uncertainties of arteriotomy Tetramethonium, pentamethonium and hexamethonium supplanted other hypotensive agents The method gained popularity in Great Britain and soon spread to the United States The factors that influence the ability of the body to make a satisfactory compensation in terms of maintained organ blood flow are the duration and degree of hypotension, the condition of the blood vessels, the metabolic needs of the tissues during hypotension, especially those of the heart and brain, and the production and liberation of specific depressant substances arising from ischemic tissues The effect of the reduction in mean arterial blood pressure by hexamethonium on the circulation of the heart, brain, liver, and kidneys was studied experimentally, and the results are presented Many complications have been reported incident to the use of controlled hypotension, but the incidence of these complications is very difficult to establish on a cause and effect basis Too many complex factors could influence their development Their incidence is significantly greater when the level of the systolic blood pressure is maintained below 80 mm Hg A survey of 21,000 cases in which induced hypotension was used, revealed 46 deaths attributable to the method, or an incidence of 1 in 459 cases The incidence of complications was vastly higher (549) or 1 in 38 cases Since the majority of the complications encountered are referrable to derangements of function of the brain, heart, and kidney, it appears unwise to use controlled hypotension in aged, sclerotic patients who give a history of coronary, cerebral, or renal insufficiency Hypotension is potentially dangerous and the indication for its use must outweigh its serious implications The decision to use controlled hypotension should be made by the surgeon not the anesthesiologist

Hypothermia K K Keown, B A Cookson, D F Downing and C P Bailey Maryland M J 3 160 162 (April) 1954 [Baltimore]

Keown and associates repeated the induction of hypothermia in animal experiments with a view of perfecting a technique suitable for application in patients with intracardiac defects These experiments proved that (1) the circulation could safely be interrupted for 12 minutes while open cardiotomy was accomplished at a temperature of 78 8 F, (2) it is possible to control bodily temperature by means of slow cooling, (3) arterial transfusions are helpful in the prevention of coronary air embolization, (4) citrated whole blood predisposed to ventricular fibrillation in a cold heart, due to a calcium-potassium imbalance, (5) the heart rate and blood pressure are lowered in almost direct proportion to the decrease of the body temperature, and (6) application in human beings seems feasible The authors induced hypothermia in four infants less than 6 months of age, who received no depressant drugs other than small doses of meperidine (1 mg per pound of body weight) Open thoracotomy was performed, and there was no evidence of neurological damage in the two infants who survived Children older than one year of age are anesthetized with thiopental (Pentothal) sodium given intravenously until unconsciousness is reached, then the endotracheal catheter is passed to assure a patent airway Immediately after tracheal intubation a thermocouple is inserted into the rectum of the patient and checked for accuracy The dial of the thermocouple is attached to the anesthesia machine so that the decrease in temperature can be observed constantly The electrodes of the electrocardiograph are applied and the patient is placed on a refrigeration mattress About 60 to 90 minutes are required to lower an infant's rectal temperature to 74 F When a bodily temperature of 82 4 F is reached, voluntary respiratory activity ceases, then the anesthesiologist must assume control of respiratory activity During rewarming, respirations again become spontaneous at the same temperature The electrocardiographic tracings show progressive changes Immediately following surgery, rewarming is started by circulating warm water through the coils in the blanket Most infants will respond satisfactorily in a recovery room, and will have a normal temperature within 10 hours It has been possible to interrupt the circulation of an infant completely for as long as 22 minutes without evidence of renal, hepatic, cerebral, or cardiac damage The authors believe that hypothermia is indicated in infants who require cardiac or extracardiac great vessel surgery, in operations that require a complete interruption of the circulation, and in major surgery of any type in debilitated infants or children They regard the use of hypothermia as contraindicated in the presence of acquired heart disease, poor myocardial tone and defects, and also in noncyanotic infants and children for operations not requiring the interruption of the circulation

Hypothermia, Ganglioplegics, and Homoplastic Skin Grafts. V Bergonzelli and C Orecchia Arch sc med 79 261 267 (March) 1954 (In Italian) [Turin, Italy]

Experiments were carried out on guinea pigs to determine the eventual interference of the autonomic nervous system with the survival of homoplastic grafts A homoplastic graft of total skin was made on the abdomen of some guinea pigs that served as controls In other animals the graft was made after prolonged administration of ganglioplegics, in a third group after hypothermia was induced (rectal temperature of 34 to 35 C [93 2 to 95 F]), and in the last group after the effects of hypothermia were potentiated by administration of ganglioplegics (rectal temperature of 32 to 33 C [89 6 to 91 4 F]) The length of survival of the grafts was not influenced greatly by the administration of the ganglioplegics alone, and these combined with hypothermia represented a danger to the life of the animals, four of which died The length of survival of the grafts was greatest in the group of animals subjected to hypothermia In these the grafts lasted as long as three weeks as compared to 10 days in the controls The authors attribute these favorable effects to a slowing down of the metabolic exchange in the tissues and a reduction of the reactive processes of the organism around the graft

PHYSIOLOGY

Synovial Fluid I Comparison of Sodium and Potassium Concentrations in Normal and Diseased Joint Fluid K L. Yielding, D Platt and H L Holley Proc Soc Exper Biol & Med 85 665-667 (April) 1954 [Utica, N Y]

Previous investigations on synovial fluid have utilized material obtained from cattle, horses, dogs, edema effusions, and human autopsy material For the studies described here, synovial fluid samples were aspirated from the knee joints of 10 healthy living persons, 10 autopsy cases, 25 patients with effusions in untreated acute rheumatoid arthritis, and 5 persons with osteoarthritis with effusion It was found that, by allowing the subjects to remain inactive for 8 to 12 hours prior to the procedure, volumes of fluid up to 1 cc could be obtained from the knee joint A 20 gauge needle was introduced under the medial border of the patella directly into the joint cavity Prior infiltration of the skin with 1% procaine made the procedure relatively painless The sodium and potassium concentrations were determined in the synovial fluid specimens as well as in the serum In the synovial fluid obtained from patients with rheumatoid arthritis, there was an increase in sodium concentration with a corresponding increase in the synovial fluid serum ratio for sodium The increase in the sodium concentration in the joint fluid of patients with rheumatoid arthritis as compared to that found in normal fluids appears to be statistically significant, the more so, since the serum values were essentially equal in normal subjects and in those with rheumatoid arthritis There appear to be at least three possible factors affecting the alteration in the electrolyte concentrations of synovial fluid in diseased states—alteration of protein content, qualitative and quantitative alteration of the polysaccharide component of the fluid, and changes in permeability of the synovial membrane It has been shown electrophoretically that the total protein content, and especially the globulin fraction, is increased in the joint fluid in rheumatoid arthritis

The Effect of Potassium Chloride on Hyponatremia J H Laragh J Clin Invest 33 807-818 (May) 1954 [New York]

An abnormally low concentration of sodium in serum and extracellular fluid often occurs in cardiac edema and in other states characterized by excessive retention of fluid Rigorous sodium restriction, mercurial diuretics, and cation-exchange resins may exaggerate or produce this tendency Sodium administration often enhances accumulation of fluid Hypertonic sodium chloride, though effective at times, may be neither beneficial nor safe Because hyponatremia per se may play a role in the production of adverse symptoms, it seemed desirable to search for another diuretic agent that might promote the loss of excessive body water without aggravating disturbances in sodium metabolism Potassium chloride was administered orally to hyponatremic patients with and without edema In these patients, small to rather striking increases in the serum sodium concentration were observed without the addition of exogenous sodium The nature of the phenomenon is not wholly clarified but seems best explained by a release of sodium from cells in exchange for potassium In the edematous hyponatremic subject, no significant change in renal excretion of sodium or water was observed after potassium chloride administration, even when serum sodium levels were simultaneously raised toward normal This occurred with both low and higher sodium intakes The hyponatremic patients studied seemed unable to metabolize potassium with normal facility, and, therefore, its administration is not without hazard, when compared to normal subjects the hyperkalemia produced seemed to be more profound and more prolonged Moreover, with the doses employed in this study, potassium chloride did not exert a diuretic action

Consumption and Selection of Food in Competitive Lumber Work M J Karvonen and O Turpeinen J Appl Physiol 6 603 612 (April) 1954 [Washington D C]

Lumberjacking is an occupation involving highest caloric expenditures During working competitions the amount of wood cut per day may amount to three times that cut by an average lumberjack It may be asked whether the calories required by the competitive work can be adequately covered by food intake, or whether the high intensity of work leads to a loss of weight. A study was made of the consumption and selection of food during the Finnish National Woodcutting Competition in November 1951 The mean caloric value of the food intake was 5,460±750 calories per day The calorie intake was not significantly correlated with the performance During the competition there was an average weight loss of 1 2±1 5 kg The weight loss and the performance showed a positive correlation The selected diet consisted of 46 6±4% carbohydrate 41 6 ±3 3% fat, and 11 8±1% protein On the whole, the figures obtained in the present study and those published for ordinary lumberman s work are similar, indicating that the competitors attained their top performances essentially through more economical methods and not through a higher energy expenditure The fat content of the diet of the competitors was exceptionally high—42% or 264 gm The United States National Research Council recommends a fat intake equivalent to 30 to 35% of the total intake of calories for persons using more than 3,000 calories per day The high fat intake may be explained by the cold climate and the heavy work, or both However, the diet of the classes from which the majority of the competitors came, is not characterized by a particularly high fat intake It was evident that the work was the main factor in the selection of a diet rich in fat, obviously a bulky meal would be an obstacle to the efficiency of a man who does heavy labor often in an uncomfortable position The fluid to replace the loss of sweat was taken mostly during work. Many of the competitors had learned to use drinks combining fluid and calories Warm milk fortified with sugar was a favorite drink. In long distance ski running, the skiers also are advised to take milk with sugar at frequent intervals This method agrees with the recommendations of recent physiological research for the continuous replacement of water loss in dehydration and carbohydrate in muscular work.

Artificial Respiration by Mouth to-Mask Method A Study of of the Respiratory Gas Exchange of Paralyzed Patients Ventilated by Operator's Expired Air J O Elam, E S Brown and J D Elder Jr New England J Med 250 749-754 (May 6) 1954 [Boston]

Mouth to-mask or mouth to tracheal-tube ventilation was performed on nine adult surgical patients in the immediate postoperative period before recovery from general anesthesia Expired carbon dioxide and respiratory flow were first recorded to establish control values The total volume of the inflation and expiration of the patient passed through the carbon dioxide analyzer and pneumotachograph During artificial ventilation, the operator s alveolar carbon dioxide pressure was also recorded with each inflation of the patient s lungs An intravenous drip of succinylcholine in sodium chloride solution was started, and the rate of infusion adjusted to produce cessation of respiratory flow At the onset of apnea as indicated by the pneumotachograph record, mouth-to-mask or mouth to-tracheal-tube ventilation was instituted An anesthesia mask with 110 cc of dead space was fitted over the patient s nose and mouth and held securely by bilateral manual support. The operator took a deep breath of ambient air, applied his lips around the ferrule of the mask, and inflated the patient s airway and lungs until lift of the upper chest was observed The operator then removed his lips from the mask, turned his head to one side and inspired ambient air while the patient exhaled through the mask Either the rate or the volume of inflation was decreased if the operator experienced dizziness The same method was used for performing mouth-to-tracheal tube ventilation, except that the carbon dioxide analyzer and pneumotachograph were interposed between the patient s endotracheal tube and the operator After an interval of five to 30 minutes of artificial ventilation, arterial samples were collected Van Slyke analyses of oxygen content and capacity and carbon dioxide content were completed within three hours of arterial sampling pH measurements were started within five minutes Normal respiratory blood gas exchange of the patient was consistently produced by mouth-to-mask or mouth-to-tracheal-tube ventilation These results appear to be sufficient to establish the general applicability and adequacy of the method. The efficiency with which ventilation by expiratory inflations reestablished normal oxygen and carbon dioxide exchange of the patient was striking. The operator knew immediately whether the patient was being ventilated Sufficient inflating pressure was automatically exerted to ensure delivery of an adequate volume, since the operator tended to compensate for changes in airway resistance and in lung compliance The method appears to be the ideal emergency procedure for artificial ventilation because the patient s alveolar oxygen pressure can be rapidly elevated and normal pulmonary gas composition can be rapidly established Preliminary evidence suggests that for prolonged periods of mouth to-mask ventilation hypocapnia in the operator can be prevented by the imposition of additional external dead space on the operator The potential hazard of rupture of the lung in patients with small or abnormal lungs may be excluded if inspiratory inflation is terminated when there is perceptible expansion of the chest

BOOK REVIEWS

Laboratory Aids in Endocrine Diagnosis By Roberto F Escamilla, M D Associate Clinical Professor of Medicine, University of California Medical School San Francisco Publication number 212, American Lecture Series *monograph in Bannerstone Division of American Lectures in Endocrinology edited by Willard O Thompson M D Clinical Professor of Medicine* University of Illinois College of Medicine, Chicago Cloth $4 75 Pp 131 with 21 illustrations Charles C Thomas Publisher, 301 327 E Lawrence Ave *Springfield Ill Blackwell Scientific Publications* Ltd 49 Broad St *Oxford England, Ryerson Press,* 299 Queen St W Toronto 2B, Canada 1954

This monograph covers both routine and special clinical laboratory procedures that may be helpful in the diagnosis of endocrine diseases The tests include pertinent chemical analyses of the blood and urine reactions to clinical reagents or drugs, the use of devices, such as for basal metabolism and x-ray, and pathological techniques for the study of stained smears and biopsy specimens A final chapter provides an index to those tests that are considered important, occasionally helpful, or of incidental interest No general index is provided, but the smallness of the book makes this deficiency relatively unimportant The table of contents at the beginning is sufficiently detailed to permit ready access to the main text Details of laboratory procedures for routine analyses and for roentgen techniques are omitted Some of the *information provided can be found in texts that cover the general subject of clinical diagnosis by laboratory methods In some instances the author uses trade in place of generic names for drugs Reference that is made to the "benzodioxane" test should be "piperoxan (or Benodaine)" test Reference to the "Regitine" test is accurate, but could be improved* by similar treatment as "phentolamine (Regitine)" test The printing, paper, and binding are excellent *Clinicians in general* should find the book useful chiefly for convenient reference in the diagnostic study of endocrinopathies

The Alkaloids Chemistry and Physiology Volume IV Edited by R H F Manske and H L Holmes Cloth $8 50 Pp 357 Academic Press Inc, 125 E 23rd St, New York 10 1954

The next-to-the-last volume of this valuable series covers drugs having an isoquinoline structure, i e, alkaloids of anhalonium, cactus, protoberberine, aporphine, protopine, and cularine, as well as simple isoquinolines and the benzylisoquinoline, bisbenzylisoquinoline, and α-naphthaphenanthridine alkaloids Two chapters are given to alkaloids of erythrophleum and of aconitum and delphinium, whose structures are not yet known The chapters are written by experts in their fields Several chapters include sections on pharmacology As is the case with the other volumes in the series, there are bibliographies at the ends of the chapters, author and subject indexes, and clear structural formulas The book is well produced

Population Statistics and Their Compilation *By Hugh H Wolfenden* With appendix on Some Theory in the Sampling of Human Populations by W Edwards Deming, Ph D Second edition Cloth $7 50 Pp 258 Published for Society of Actuaries by University of Chicago Press, 58th St and Ellis Ave, Chicago 37, 1954

This is a revised edition of a standard reference work on methodology for the advanced student of vital statistics A number of developments have occurred in the theoretical and practical problems involved in the compilation of population statistics since this book was first published under the same title as "Actuarial Study No 3" in 1925, this edition has been rewritten and enlarged to include descriptions and references covering new material The book is concerned primarily with the methods of compiling various types of population statistics that are of value to the actuary and is complete and comprehensive in its treatment of the historical and actuarial-mathematical problems of population statistics An outline of the history and principles of census-taking and birth, marriage, and death registration in various countries, an analysis of the reliability of census and registration statistics, procedures for estimating populations, the validity of population projections and the theory of reproductivity, and development of mathematical relationships between births, deaths, population, and the formulae for mortality rates are included in this book The material on the graphic, curve fitting, and interpolation methods of constructing mortality tables includes the latest developments in tangential and osculatory interpolation, as well as the use of linear compounding coefficients to minimize the mean square error in a specified order of differences Discussions of methods of constructing abridged life tables and comparing mortality rates in different communities also include the most recent procedures

An Atlas of Congenital Anomalies of the Heart and Great Vessels By Jesse E Edwards and others Cloth $13 50 Pp 202 with 272 illustrations Charles C Thomas Publisher 301-327 E Lawrence Ave, Springfield, Ill, Blackwell Scientific Publications, 49 Broad St, Oxford, England, Ryerson Press, 299 Queen St, W, Toronto 2B, 1954

In this great medical atlas, the description of each anomaly is aided by photographs of models in color, photographs of the actual specimen, diagrams, roentgenograms, electrocardiograms, and in many instances data derived from cardiac catheterization and other significant clinical data To assemble such a book required a tremendous amount of work and could have been done only by a closely integrated group such as this one from the Mayo Clinic Several anomalies such as Ebstein's malformation of the tricuspid valve, Marfan's syndrome, and anomalies of the coronary arteries are added in this new edition *The authors have wisely kept the clinical data to outline form and have refrained from discussing treatment The book describes as clearly and concisely as possible each congenital defect Those interested in medical history will be pleased with the section of short biographical sketches and pictures of the important persons in the field A carefully selected bibliography includes most of the important literature in the field of congenital heart disease This atlas should be available to every physician for ready reference*

Man Above Humanity A History of Psychotherapy By Walter Bromberg B S, M D Foreword by Winfred Overholser, M D, Sc.D Cloth $5 75 Pp 342, *with 16 illustrations* J B Lippincott Company 227 231 S Sixth St Philadelphia 5, Aldine House 10-13 Bedford St, London, W C 2, 2083 Guy St, Montreal Canada, 1954

This history traces psychotherapy from the Stone Age to the present and discusses magic, faith-healing, witchcraft, early asylums for the insane, Christian Science, rest cures, animal magnetism, hypnotism, various modifications of psychoanalysis, mental hygiene, and group methods of psychotherapy The author in his preface states that this is a rewriting of his earlier book entitled "The Mind of Man," published in 1937 The present title is taken from a quotation in Seneca's "Naturales Quaestiones " The author believes the factors entering into psychotherapy must always include "the primitive sense of magic, an aspect of faith displaced to the therapist and a re-enactment of infantile feelings within the transference situation " The best chapter is that on mental hygiene There is an index

Emotions and Reason By V J McGill Associate Professor of Psychology and Philosophy, *Hunter College, New York* Publication number 215 American Lecture Series monograph in American Lectures in Philosophy edited by Marvin Farber, Ph D Cloth $3.25 Pp 122 Charles C Thomas Publisher 301-327 E Lawrence Ave Springfield, Ill Blackwell Scientific Publications, 49 Broad St, Oxford England, Ryerson Press 299 Queen St., W Toronto 2B 1954

This monograph begins with the proposition that "The two main determinants of human behavior are motivation and ability, and there is a growing conviction that the two cannot be profitably separated " The author's subsequent thesis, insofar as it can be detected, is that emotions and reason are similarly interrelated Unfortunately, these portmanteau terms are made to carry so many other concepts equally vague or inclusive that readers may have difficulty in following the ensuing vagaries of thought and exposition This volume is recommended for those who like metapsychological polemics, but it will, on the whole, furnish little useful information to the medical practitioner

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These book reviews have been prepared by competent authorities but do not represent the opinions of any official bodies unless specifically so stated

QUERIES AND MINOR NOTES

CALCIUM "SHOTS"

To the Editor —*Many of my patients want calcium 'shots because they have a friend who has been getting calcium shots In few of these patients am I able to find any sign of calcium deficiency I send them to the hospital laboratory for blood calcium determinations and they are always reported within normal limits Is there any rationale for the widespread use of calcium shots and even calcium by mouth except for the presence of known calcium deficiency?*

J Street Brewer, M D , Roseboro N C

This inquiry was referred to five consultants, whose respective replies follow —Ed

Answer —Strictly speaking the rationale for calcium therapy is to combat a calcium deficiency state Under normal conditions the amount of calcium in the body remains constant The activity of the parathyroid glands is closely related to the behavior of calcium in the body The highest calcium requirements are observed during infancy early adolescence, pregnancy and lactation, and menopause The functions of calcium are numerous It is essential for ossification of bone, for adequate contraction of cardiac muscle and for normal blood clotting it diminishes capillary permeability, and it decreases the excitability of the autonomic nervous system Nature attempts to keep the concentration of calcium in the blood at a constant level In the investigation of diseases in which abnormalities in calcium metabolism are suspected, it is desirable to determine a concentration of serum protein and serum phosphatase in addition to the concentration of calcium and inorganic phosphates in the serum

Answer —When the bones are well calcified and the blood levels of calcium, phosphorus and total protein are normal there seems to be little justification for the giving of calcium salts Injected calcium is promptly lost from the blood stream and much of it is either stored in the bones or excreted The situation is quite different when there is a metabolic drain on the calcium stored in bones or when the blood levels are low When calcium is restricted in the diet by eliminating milk, eggs and green vegetables or when absorption of calcium is reduced by diarrhea or other intestinal disease, then parenteral calcium has some justification

Answer —It is very rarely that calcium must be given intravenously Tetany of the low serum calcium variety is the only indication that comes to mind and here it is seldom necessary It is not indicated in any form in osteoporosis in osteomalacia it may be beneficial by mouth In pregnancy it is not indicated by either route

Answer —There is widespread unwarranted use of calcium compounds given parenterally This practice is promoted by certain manufacturers of calcium compounds prepared for this purpose The indications for use of calcium compounds are well stated in New and Nonofficial Remedies" (1954 page 484) as follows Calcium salts are specific in the treatment of hypocalcemic tetany Vitamin D or parathyroid hormone may also be indicated according to the etiology involved In severe tetany parenteral administration preferably intravenous is indicated to bring symptoms under rapid control Latent tetany or mild symptoms may be controlled by oral medication There is little or no justification for parenteral administration of calcium compounds except as an emergency measure Oral administration in known calcium deficiency may be a matter for individual judgment as a rule a remedial diet is preferable to the administration of calcium compounds The answer to the query is an unqualified no'

Answer —The understanding of calcium metabolism is so complex and its disturbance so difficult to classify that to empirically administer calcium shots" is not medically sound There is a dire need for certain studies to be made, for there are many cases of disturbance of calcium metabolism undiagnosed and poorly understood The studies would include urinalysis, particularly for Bence-Jones protein blood calcium phosphorus, and phosphatase total serum protein with albumin-globulin ratio blood smears (rouleau) sedimentation rates and roentgen studies of bone and gastrointestinal and genitourinary systems Especially, one must understand the close relationship of calcium and phosphorus, the importance of the functional state of the parathyroid glands the function of the enzyme phosphatase and the use and action of dihydrotachysterol vitamin D and parathyroid In summary, calcium administration and methods of maintaining calcium balance are well founded if they are supported by careful diagnostic studies

GLARE REDUCTION AND DEPTH PERCEPTION TEST

To the Editor —*What is a simple and reliable test for glare recovery and depth perception suitable for office practice?*

Karl J Chiapella M D Chico, Calif

Answer.—Berens and Zuckerman (Diagnostic Examination of the Eye Philadelphia J B Lippincott Company, 1946) discuss several simple methods of testing for glare recovery and depth perception In testing for glare recovery the patient should be directed to look for three minutes at a bright light (two bulbs of 5 400 millilamberts each) placed 3 ft away The patient should then be placed in a dark room 18 in from a test light (0 004 millilamberts) This standard test light is admitted to a narrow aperture measuring 1⅛ in in a cylindrical tube Recognition of the direction of the slit is a check of the accuracy of the patient s response The patient is directed to look directly above or below the test light but not directly at it He then states when he is able to see the light Normally 60 seconds elapse between the time the bright lights are turned off and the time the test light is recognized A longer interval suggests a decreased ability to regenerate visual purple Several commercial devices are available for the measurement of depth perception One simple method is to direct the patient to touch with a 20 mm white ball inserted in a wooden rod 1 m long another white ball of the same size at the end of a similar rod, which the examiner holds in his outstretched arm This test should be repeated in all fields of fixation while the patient s head is prevented from moving so he fixes only by movement of his eyes

LIGATION OF THE VASA DEFERENS

To the Editor —*Precisely what happens when the vasa deferens are ligated during a prostatectomy? What is the effect on the testes and endocrine system?*

Joseph G Lee M D Los Angeles

Answer —When the vasa deferens are ligated at the time of either a transurethral resection of the prostate or an open prostatectomy the only thing that happens is a severance of the channel that conducts the sperm from the testis and epididymis to the ejaculatory duct in the posterior urethra There is no evidence of any kind on careful research to show that the testis or the endocrine system is in any way affected by this procedure Spermatozoa continue to form in the testis for as many years as we know after this has been done and if the vasa are reunited successfully normal sperm will pour out again through these channels to be ejaculated in the usual manner

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The answers here published have been prepared by competent authorities They do not however represent the opinions of any official bodies unless specifically so stated in the reply Anonymous communications and queries on postal cards cannot be answered Every letter must contain the writer s name and address but these will be omitted on request

PREGNANCY AND BREAST CANCER

To THE EDITOR —*Should sterilization be performed after radical mastectomy in women who are still menstruating? If the answer is yes should it be accomplished by irradiation or surgery? Also is therapeutic abortion indicated in a woman who becomes pregnant after a radical mastectomy for cancer of the breast?* *M D , New York*

ANSWER —There is still much difference of opinion concerning castration following radical mastectomy for carcinoma Some surgeons believe that castration should be performed and that removal of the ovaries is far better than radiation castration Operative sterilization without stopping ovarian function is not recommended Cheek (*Arch Surg* 66 664 [May] 1953) says the prognosis for patients with cancer of the breast developing during pregnancy, though poor, need not be invariably hopeless Occasional instances of five year cures have been reported Pregnancy is not a factor that in itself, would cause the disease to be inoperable Termination of pregnancy seems to be indicated particularly if the growth is discovered during the first half of gestation and if there is no serious conflict with religious tenets of the family However, White (*Ann Surg* 139 9 [Jan] 1954) who analyzed 920 cases, says that abortion cannot be shown to have a clear effect on the survival rate There is general agreement that subsequent pregnancies should be avoided by women who have had mammary carcinoma Whether pregnancy increases the chances of carcinoma developing in the remaining breast remains unsettled Any hope for an improved prognosis of carcinoma of the breast during pregnancy lies in early diagnosis, when the growth is still clinically operable For this reason physicians should examine the breasts of their patients completely and at frequent intervals

ALLERGY TO FISH

To THE EDITOR —*Is there any way to desensitize a 5-year-old child who is extremely allergic to fish? Hives and asthma develop when she smells fish or when she is in a room in which fish has been fried On one occasion she ate a small piece of fish and became comatose and cyanotic and had a rapid, thready pulse These symptoms are relieved fairly promptly by an intramuscular injection of methapyrilene (Histadyl) hydrochloride Antihistaminics have been tried but do not prevent the attacks*

Charles H Brant, M D , Wooster, Ohio

ANSWER —Most allergists agree that desensitization to foods by giving injections of the antigen is not successful nor practical Allergy to fish is one of the most violent types of hypersensitivity Not only would injections of fish antigens be hazardous, but it is doubtful that the degree of desensitization accomplished would be sufficient to influence the clinical symptoms In this case preventive measures are the only means of avoiding trouble In case of a severe reaction the prompt administration of epinephrine hypodermically is advised Most likely this sensitivity will persist throughout the patient's life

REMOVAL OF BROKEN HYPODERMIC NEEDLE

To THE EDITOR —*Can a hypodermic needle that has been accidentally broken off into the tissues be removed with a powerful magnet?* *Leon Banov, M D , Charleston, S C*

ANSWER —The best treatment is prevention Rarely does the shaft of the needle break, but rather the needle breaks at its joint with the shank If the needle never is inserted to its full length, even breaking off will not result in losing the needle in the tissues It is feasible to use the Lancaster eye electromagnet (medium-size hand model) to remove broken needles lost in the tissues within limitations The magnet will not, however, pull out needles unless they are at an acute angle with the skin surface Furthermore, there must be actual contact between the magnetic applicator and the needle This usually means that a small incision must be made through the skin, then the probe-type tip (pencil-lead size) can be inserted to find the needle Since an incision must be made, it is almost as easy to grasp the needle with a hemostat and withdraw it, except that the magnet may obviate tissue exploration The magnet will not remove a needle parallel with the skin, nor will it pull an end on needle through intact skin Good contact between needle and applicator is necessary All in all, the magnet is effective only part of the time and does not obviate a skin incision

SILICOSIS

To THE EDITOR —*Once there is roentgenologic evidence of silicosis, will progression continue to take place even though there is no further exposure to free silica? It is assumed that tuberculosis is not superimposed Also, how essential is it to avoid further exposure to silica once there is evidence of silicosis?* *A M Phillips, M D , Warwick, R I*

ANSWER —After the detection of roentgenologic evidence of silicosis, it does not always follow that progression takes place Further roentgenologic examination over such intervals as six months should be conducted in order to ascertain whether progression is occurring No workman with or without silicosis should be subjected to significant exposure to silica It becomes desirable in all instances to reduce the exposure at the work point below that serving as a threat of silicosis Thereafter, even those workers with known silicosis, if of nondisabling degree, may continue working

INJECTION OF ESTROGENS INTO ANIMALS USED AS FOOD

To THE EDITOR —*Is it safe to caponize male chickens by injecting 12 mg of diethylstilbestrol into the neck tissues and placing these birds on the market within two months for home consumption? I understand that hormones are injected into female birds, including turkeys, and into cows What about remote carcinogenic effects?* *M.D , New Jersey*

ANSWER —There is no reason to believe that the administration of estrogens including diethylstilbestrol in animals or birds should render the meat unfit for consumption Adequate evidence indicates that these hormones are completely metabolized into inactive components within a few hours There is no conclusive evidence that the estrogens ordinarily used are carcinogenic in man in therapeutic amounts

PULSATING MIDDLE-EAR FLUID

To THE EDITOR —*I have observed in several cases of acute otitis media with spontaneous perforation the fluid pulsating as it extrudes through the perforation I suppose this represents transmitted pulsation from the dilated blood vessels of the inflamed middle ear, but I am surprised that such pulsation should be so macroscopic Is it so frequent as it seems to me, and is there a more probable explanation?*

Frank C Leitnaker, M.D , New York

ANSWER —Pulsation of the discharge from an acute otitis media is undoubtedly the result of vasodilatation in the middle ear mucosa and occurs when the middle-ear spaces are completely filled with fluid so that the pulsation in the arterioles in this rigid bony cavity must necessarily be transmitted to the fluid escaping through the tympanic membrane perforation

ELECTRIC SHOCK

To THE EDITOR —*I would like your opinion on the use of stimulants in recession from electric shock Clinical and experimental evidence shows that the use of epinephrine is contraindicated, however, I would like to know whether or not the use of nikethamide (Coramine), caffeine, or some similar stimulant is indicated, or should all the stimulants be avoided?*

Howard P Knapper, M.D , St Petersburg, Fla

ANSWER —In electric shock, the heart is usually in fibrillation due to a lack of blood in the heart itself The blood has accumulated in the blood vessels of the abdomen, hence, an attempt should be made to stimulate the vasoconstrictors by pressure that might force blood into the heart Until the heart is out of fibrillation, all stimulants are contraindicated, with the exception of carbon dioxide, which is a respiratory stimulant Personal experience with all stimulants has been unsatisfactory

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PULMONARY EMBOLISM

INCIDENCE AND SIGNIFICANCE

Abe Towbin, M.D., Columbus, Ohio

Pulmonary embolism becomes an increasingly important problem as the extent of its incidence becomes unveiled. Although the subject of much study, the incidence of pulmonary embolism has remained a matter of uncertainty and disagreement. Pulmonary embolism is reported by some as being infrequent; it may, in fact, represent one of the most important forms of terminal illness, one of the commonest causes of death in the population at large. The diagnosis of pulmonary embolism is difficult and equivocal. The disease is usually portrayed as being of sporadic occurrence; although this conception is deeply rooted in medical opinion, it is open to question. To obtain an exact measure of the incidence of fatal pulmonary embolism in the general population, two conditions must be fulfilled: the evaluation must be based on autopsy examinations and a high percentage of the deaths in a given community over a period of years must be examined. The disagreement in the literature regarding the incidence of pulmonary embolism stems from the fact that it has been difficult to provide circumstances in which these conditions could be fulfilled.

POSSIBLE APPROACHES TO PROBLEMS

Studies of pulmonary embolism in the past, despite the variable factors encountered and despite the difficulties in obtaining comprehensive data, have contributed important information. The incidence of pulmonary embolism continues to be studied intensely in many clinics. In previous surveys of thromboembolic disease of the lung, recourse has generally been had to three avenues of investigation: vital statistics, clinical studies of cases diagnosed in the hospital, and general hospital autopsy studies. These methods, because of their inherent limitations, do not provide conclusive cross-sectional data of the incidence of pulmonary embolism in the general population. In pursuit of this problem, a fourth method, the autopsy study of persons in custodial institutions, is offered in the present work.

Vital Statistics.—Vital statistics, as generally registered, are unacceptable as an indicator of the incidence of pulmonary embolism because of inevitable errors in deathbed diagnosis and inadequate number of autopsies. Members of the older age group, in large proportion, remain at home during their terminal illness; at death, which is often ascribed to "natural causes," autopsy is not performed. Definite information regarding the nature and incidence of terminal illness is buried with the remains and lost forever. A survey of vital statistics shows that the diagnosis of pulmonary embolism is rarely made by physicians in deaths occurring at home. In the vital statistics of the city of Columbus, Ohio, in 1951, 3,958 deaths representing all ages were registered; of these deaths, slightly over one-half, 2,133, occurred in hospitals. Pulmonary embolism was diagnosed in 62 cases, or 2.91% of hospital deaths. In deaths that occurred at home, the diagnosis was considered in 0.76% of cases; these vital statistics indicate that the diagnosis of pulmonary embolism was made only one-fourth as often in home deaths as in hospital deaths. Significantly, most of the hospital cases of pulmonary embolism occurred in medical patients; few were surgical. In most cases the nature of the terminal illness was unrecognized clinically, the diagnosis being established only after autopsy. It is likely that the fourfold difference in frequency of fatal pulmonary embolism registered in these vital statistics reflects discrepancies in diagnosis rather than a true difference in incidence of pulmonary embolism in hospitalized and nonhospitalized patients. These data derived from the vital statistics emphasize that in medical practice there is a general unawareness of the frequency of pulmonary embolism.

Clinical Surveys.—Clinical surveys, the second method of analyzing the incidence of pulmonary embolism, have been made of patients with pulmonary disease admitted to general hospitals. In these studies the diagnosis of pulmonary embolism is generally based on physical signs and symptoms, radiological and electrocardiographic changes, and autopsy findings in available cases. In most clinical studies, the number of cases of fatal and nonfatal pulmonary embolism diagnosed on the ward is compared to the total hospital admissions. Such surveys provide significant presumptive data regarding the rela-

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From the Department of Pathology, Ohio State University College of Medicine.

tive incidence of pulmonary embolism in hospital practice Short,[1] studying pulmonary embolism in a general hospital, stressed the incidence of pulmonary embolism in medical patients, he concluded that thromboembolic disease of the lung may, in fact, be the commonest serious acute pulmonary disease in modern general hospital practice In the study by Short the incidence of thromboembolic disease was higher than that of lobar pneumonia The attitude of the past that pulmonary embolism is a disease limited largely to the postoperative period is deep rooted in medical thinking This conception is wrong Embolism in medical patients, though less dramatic than in surgical cases, is of frequent occurrence Carlotti and co-workers[2] studied the incidence of fatal and nonfatal pulmonary embolism in patients treated at Massachusetts General Hospital between 1936 and 1945 The diagnosis of pulmonary embolism was made in 0 6% of patients on the medical service and 0 24% on the surgical service

Evaluation of the incidence of pulmonary embolism by clinical means is subject to errors arising from mistakes in clinical diagnosis The clinical delineation of pulmonary embolism by roentgenologic and other clinical methods is often inconclusive, pulmonary embolism is mimicked by coronary occlusion and pneumonia and other pulmonary disease, and is often so diagnosed On the other hand, cases with all the clinical signs and symptoms of pulmonary embolism may, in fact, be some other disorder Although clinical surveys of pulmonary embolism in general hospital services are not an absolute index, such studies are of considerable significance, these studies emphasize the high incidence of nonfatal pulmonary embolism As the frequency of pulmonary embolism becomes more widely realized clinically, vigilance is increased and diagnostic error is reduced, accordingly, data from clinical studies become more meaningful

Autopsy Series in General Hospitals—The third important means of studying pulmonary embolism is by analysis of autopsy series in general hospitals These studies tend to be more definitive than analyses based on clinical findings Considerable impetus has been given to the investigation of thromboembolic disease by recent advances in anticoagulant and surgical treatment This problem has come under close scrutiny in medical as well as in surgical clinics Many studies deal with the incidence of postoperative pulmonary embolism, the prevention of this complication is still a challange to the surgeon General hospital autopsy series, together with clinical studies, are of great importance in determining the relative changes in incidence of disease and in evaluating prophylactic and therapeutic measures in hospital practice

Belt,[3] in a study of 567 autopsies on adults at Toronto General Hospital, found pulmonary embolism in 56 cases, an incidence of 10%, in 37 cases the emboli were massive and accounted for death Medical cases of pulmonary embolism predominated over surgical cases in a ratio of 40 to 16 Ochsner, DeBakey, DeCamp, and da Rocha[4] reviewed the incidence of thromboembolism at Charity Hospital in New Orleans over a 12 year period beginning in 1937 In this large general hospital during that period 32,354 deaths occurred and 10,947 autopsies were performed Death was attributed to pulmonary embolism in 476 cases, in 383 the diagnosis was confirmed at autopsy These investigators pointed out that a progressive increase in venous thrombosis and its attendant sequelae occurred during this period of years In 10,940 consecutive autopsies reviewed by Collins[5] at Los Angeles County Hospital, the incidence of fatal pulmonary embolism was 2 07% McCartney,[6] studying the autopsy records of the department of pathology at the University of Minnesota in the 20 year period beginning in 1919, found that 2 67% of deaths were due to pulmonary embolism Roe and Goldthwait[7] studied the frequency of embolism at Massachusetts General Hospital for the five year period beginning in 1943, in 2,083 autopsies, pulmonary emboli of varying size were present in 9 75% of cases, in 4 42% embolism was extensive and accounted for death, cases with massive embolism showed a steady and appreciable increase during the period of study DeBakey,[8] in a recent collective study compiled from reports in the literature, found that 10,497 cases of fatal pulmonary embolism had been reported in 374,844 autopsies, an average incidence of 2 8%

Studies based on autopsy series in general hospitals suffer from the serious distortion caused by selectivity and restriction of patients admitted The census of general hospitals in most communities does not accurately reflect the incidence of terminal illness in the aged The population of a general hospital is, to a large degree, made up of patients of the younger age group with acute illness Pulmonary embolism is predominantly a disease afflicting patients in the later decades of life Since members of the older age group often do not seek hospitalization during terminal illness, critical data dealing with this segment of fatal illness most pertinent in evaluation of pulmonary embolism are not included in the autopsy statistics registered in a general hospital

In most communities only a fraction of the general population is studied at autopsy Even in the hospital there is a natural tendency among physicians to secure autopsy information only in cases of special academic interest with special emphasis on fatal illness in the younger age group Consequently, with older patients, even those who are hospitalized, often little effort is made at the time of death to obtain permission for autopsy In the aged patient with cardiorespiratory symptoms the cause of death is often, by routine, catalogued as arteriosclerotic heart disease or bronchopneumonia Herein lies the source of considerable error Every death, whether of immediate singular medical interest or not, merits autopsy investigation to determine the nature of terminal illness

To obtain consistently valid data of the incidence pattern of fatal illness in the general population, autopsies must be performed in a high percentage of the persons

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1 Short, D S A Survey of Pulmonary Embolism in a General Hospital, Brit M J **1** 790 1952

2 Carlotti, J, Hardy, I B, Jr, Linton R R, and White P D Pulmonary Embolism in Medical Patients, J A M A **134** 1447 (Aug 23) 1947

3 Belt, T H Thrombosis and Pulmonary Embolism, Am J Path **10** 129, 1934

4 Ochsner A, DeBakey, M E, DeCamp P T and da Rocha, E Thrombo-Embolism An Analysis of Cases at the Charity Hospital in New Orleans Over a 12-Year Period, Ann Surg **134** 405 1951

5 Collins D C Pulmonary Embolism, Based on a Study of 271 Instances, Am J Surg **33** 210, 1936

6 McCartney, J S Postoperative Pulmonary Embolism Surgery **17** 191, 1945

7 Roe, B B, and Goldthwait, J C Pulmonary Embolism A Statistical Study of Postmortem Material at the Massachusetts General Hospital, New England J Med **241** 679, 1949

who die in a given community If admission of aged persons with terminal illness is restricted and if the autopsy percentage is low, autopsy data from a general hospital cease to reflect the incidence of fatal illness in the community

Autopsy Series in Custodial Institutions—In contrast to the relatively low incidence of pulmonary embolism reported in general hospitals, Moran,[9] in a five year study of deaths at Pittsburgh City Home and Hospital, observed pulmonary emboli in 23 1% of autopsies, 6 8% of deaths in this custodial institution were due to massive pulmonary embolism Custodial institutions provide unique access to information regarding the general incidence of terminal illness If a high autopsy percentage is available, data obtained from autopsy studies in a custodial institution tend to reflect the pattern of terminal illness in the general population more closely than statistics from a general hospital

The present study was carried out in the large institutionalized population of Columbus State Hospital in a period extending over four years Autopsy studies were available in a majority of deaths Although all adult age ranges are represented in the census of the institution, and although psychiatric patients are treated here, the population is composed in large measure of older persons who, lacking family ties, require simple maintenance and custodial care Physical illness observed clinically in this group is representative of that occurring in a cross section of the adult population in a general community of comparable size Accordingly, autopsy studies of terminal illness in this institutional community provide a key to the incidence pattern of terminal illness in the average adult population This study, as initiated in 1949, was formulated to define the nature and incidence of all types of fatal illness occurring in this population, however, attention became sharply focused on the problem of pulmonary embolism during the course of the investigation because of the frequent and unheralded incidence of thromboembolic lesions in the lung discovered at autopsy

METHOD OF THIS STUDY

Facilities became available in the present study to survey the incidence of pulmonary embolism in an institutional population equivalent to a community of about 2,500 persons This investigation was carried on in the period between Sept 1, 1949, and Jan 1, 1954, a period of four years and four months at Columbus State Hospital in Columbus, Ohio In this time 881 deaths occurred Postmortem examinations were performed in 512 cases, or 58%

The ages at death in the cases in which autopsy was performed ranged from 22 to 94 years, most deaths, as in any community, were in adults of advanced years The number of deaths in each age group is shown in table 1, for comparison, the number of deaths that occurred in each adult age group in the surrounding city of Columbus during 1951 is noted The distribution by ages in the two populations compared here is parallel The age group between 60 and 69 years makes up 22 7% of deaths in Columbus and 24 7% of cases in the autopsy series In 46 4% of deaths in the city the age was 70 years or over, similarly 48% of the deaths in the autopsy series occurred in persons of 70 years or over The autopsy series thus reflects closely the age distribution of adult deaths occurring in the general population in this region

The plan of investigation as initiated in 1949 represented a concerted effort to define more exactly the nature of terminal illness in this institutional community In carrying out this investigative program two principles were emphasized first, to obtain a valid cross section of fatal illness occurring in the population, efforts were made to obtain autopsy permission in each death regardless of the apparent medical importance of the case, second, the postmortem routine was standardized In a study such as this, autopsy must be done not only in a high percentage of cases but in a carefully regulated and vigilant manner Technical procedure at autopsy must be carefully controlled in studying the pathology of thromboembolic disease and in evaluating its incidence The postmortem examination should be done soon after death, with passage of time, tissue enzymes are liberated, and adherent thrombi or emboli may become loosened by local autolytic action

TABLE 1—*Age Groups in Present Autopsy Series and in Adults Who Died in Columbus, Ohio in 1951*

Age Yr	Autopsy Series Deaths		Columbus Ohio 1951 Deaths	
	No	%	No	%
20-29	13	2.5	86	2.3
30-39	16	3.1	133	3.6
40-49	45	8.8	313	8 6
50-59	66	12.9	601	16 4
60-69	126	24 7	829	22.7
70 and over	246	48 0	1 6[illegible]	46 4
Total	512		3 658	

It is requisite that autopsy be performed on unembalmed bodies Arterial irrigation considerably complicates the problem of analyzing blood clots The stream of embalming fluid, introduced under pressure, may bring about artefactual dislodgment or impaction of intravascular clots The embalming solution converts a simple postmortem clot to a mottled gray-red friable mass resembling an embolus, a recent embolus may be so altered that its true nature at autopsy remains a matter of doubt In the present study effort was made to perform autopsies as soon as possible after death, day or night, on unembalmed bodies, during the period of this study 95% of autopsies were performed on unembalmed bodies In 65% of cases the autopsy was done within five hours after death In this study 88% of the autopsies were performed by me, the remainder by other pathologists, in both groups of cases the incidence of thromboembolic lesions observed was similar, accordingly it is felt that variations in autopsy technique and observation were held to a minimum

In evaluating the findings in this study, note was made of the patient's mental status prior to death Although a majority of the population in the institution required only simple maintenance, a review of the clinical records revealed that there was in 30% of cases a degree of active mental disturbance seemingly out of proportion to the

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[8] DeBakey M E A Critical Evaluation of the Problem of Thromboembolism Surg, Gynec & Obst 98 1 1954

[9] Moran T J Pulmonary Embolism in Nonsurgical Patients with Prostatic Thrombosis Am J Clin Path 17 205 1947

natural infirmities of age These cases, evenly distributed through groups with and without pulmonary embolism, did not appear to alter the general significance of the study

In the course of the investigation the autopsy percentage in the institution rose During the last four months of 1949, 49% of persons who died were examined at autopsy, in 1950, 54%, and in 1951, 67% The autopsies represented by this increase were largely in those cases that are diagnosed at the bedside as terminal bronchopneumonia or arteriosclerotic heart disease, cases that are sometimes called "cronics" or less flattering names As the number of autopsy permissions in these cases increased in proportion, an unanticipated change in the incidence pattern of fatal illness as observed in the autopsy room became evident Pulmonary embolism, though a common finding at autopsy in other years, showed a striking increase This sharp rise in incidence of thromboembolic disease coincided with the period in which the autopsy percentage rose and occurred after the practice of embalming bodies before autopsy was discontinued

TABLE 2—*Incidence of Thromboembolic Disease of the Lung in 512 Autopsies*

Age Yr	Total No of Autopsies	Thromboembolic Lesions: Massive Pulmonary Embolism	Medium Artery Occlusion	Small Artery Occlusion	Total with Thromboembolic Disease: No	%
20-29	13	0	0	1	1	7 7
30-39	16	1	0	0	1	16 6
40-49	45	6	1	2	9	20 0
50-59	66	4	0	8	12	18 2
60-69	126	16	7	5	27	21 8
70-79	172	28	7	16	51	29 7
80-89	69	15	3	8	28	40 7
90-99	5	3	0	1	4	80 0
Total	512	73	18	41	132	25 7

When pulmonary arteries were occluded by adherent clot, it is likely that in some instances the process began as an embolus and grew by appositional thrombosis and that in some instances the occlusion originated in situ as a thrombus The resulting closure of the pulmonary artery, the effect pertinent to the present study, whether embolic or thrombotic, would be largely the same, an ischemia of the lung tissue In analyzing an antemortem clot in a pulmonary artery it is often difficult to distinguish between embolus and thrombus Ceelen,[10] in reviewing this problem, found that most researchers, including Virchow, held that most antemortem clots in the branches of the pulmonary arteries are embolic Consistent with this, in the present report such lesions will generally be referred to as embolic

In analyzing the emboli in the pulmonary arteries, three groups of cases, based on the extent of vascular occlusion, could be defined Arterial occlusion was classified as massive, medium, and small, according to the size of the occluded artery Massive embolism was the diagnosis applied at autopsy if one or more of the main lobar arteries was occluded by an antemortem clot Usually in these cases the presence of a characteristic, coiled, friable, laminated embolus presented no problem in autopsy diagnosis Occlusion was classified as medium if the largest artery occluded was 5 to 10 mm in diameter, these are arteries that are located mainly in the intermediate third of the lung field Involved arteries of less than 5 mm in diameter, such as those located in the peripheral zone of the lung, were classified as small artery occlusion

RESULTS

The original investigation had not been designed specifically as a study of thromboembolic disease, however, the high incidence of pulmonary embolism discovered at this time proved to be a most significant aspect of the data In the first year 29% of the 90 cases at autopsy revealed thromboembolic lesions of some degree in the lung The incidence of thromboembolic disease in the lung for the entire period of study is indicated in table 2 Of the 512 cases studied at autopsy, thromboembolic lesions were present in 132, or 25 7% In this series massive pulmonary embolism was the cause of death in 73 cases, or 14 2% Occlusion occurred in arteries of medium caliber in 18, or 3 5% of cases Arterial occlusion limited to the small branches in the periphery of the lung occurred in 41, or 8% of autopsies

Well-established infarcts of the lung were noted in 60 autopsies, representing 45% of the cases in which there was embolic disease of the lung In many instances, as will be noted later, rapid death did not permit development of definite infarction As is well known, occlusion of an artery may not lead to infarction even after a prolonged period Infarction in the lung is not likely to occur after impaction of the embolus unless there is antecedent embarrassment of the pulmonary circulation, as in chronic passive congestion, or unless there is coexistent parenchymal disease such as pneumonia or bronchiectasis

The most frequent site of embolization in the lung was the right lower lobe, this lobe was involved in 61% of the cases in which there were thromboembolic lesions, usually there were concurrent emboli in other lobes In 38% the left lower lobe arteries contained emboli, other lobes had a smaller number of emboli The distribution of emboli noted here may be due to the anatomic structure of the pulmonary arterial tree The artery to the right lower lobe lies in a more direct line with the current from the main pulmonary artery than do the slightly angulated branches to the other lobes, consequently, more emboli may be directed to the right lower lobe than to other sites

The occurrence of pulmonary embolism in the present study is greater than that generally reported, the incidence recorded in most previous studies is derived from a distinctly selected population Whereas the present survey is based on terminal illness occurring in a wide cross section of adults in an institutional community, most other reports are derived from studies of deaths occurring in the more highly restricted population of general hospitals The findings in the present study agree closely with those of Moran,[9] who studied the general incidence of pulmonary embolism in a population similar to that of the present study In Moran's study of 635 consecutive autopsies, emboli were observed in 147 cases, an incidence of 23 1%, in 43 instances, embolism of massive degree occurred

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[10] Ceelen, W Embolische Verschleppungen in die Lungenschlagader, in Henke, F, and Lubarsch, O Handbuch der Speziellen Pathologischen Anatomie und Histologie, Berlin, Springer Verlag, 1931 vol 3, pt 3, p 59

The present study indicates that in the adult population pulmonary embolism increases sharply with age The number of cases in which autopsy was performed and the incidence of pulmonary thromboembolic lesions as related to age groups is recorded in table 2 Two hundred forty-six deaths occurred in persons more than 70 years old, 83 of these cases, or 34%, showed thromboembolic lesions in the lung at autopsy Massive pulmonary embolism was the direct cause of death in 46, or about one-fifth, of the persons in this portion of the population who came to autopsy

CLINICAL PATTERNS OF PULMONARY EMBOLISM

In considering this series of cases from a clinical point of view, it became evident that three definite clinical patterns can be associated with the process of pulmonary embolism sudden death, a subacute course, and a chronic pattern These three clinical forms are detailed in table 3 The clinical effects evoked by thromboembolic disease of the lung may be varied and confusing Although the division of cases presented here is empirical and there is necessarily an overlapping of one group with another, this classification permits a panoramic view of the clinical guises of pulmonary embolism observed in this study

TABLE 3—*Clinical Patterns in 132 Patients with Thromboembolic Pulmonary Lesions Who Came to Autopsy*

Clinical Type	No of Cases	Length of Terminal Illness	Autopsy Findings *	Clinical Diagnosis *
Sudden death	24	Instant to several hours	Massive embolism in one or more lobar arteries	Coronary occlusion
Subacute course	55	1 to 7 days	Occlusion of large and medium sized pulmonary arteries early infarcts	Bronchopneumonia
Chronic pattern	53	Several weeks	Often only small arteries occluded often arteries of all calibers occluded infarcts of varying age	Often no pulmonary diagnosis made

* In most cases

TABLE 4—*Effect of Age Sex Race and Body Weight on Incidence of Thromboembolic Disease of the Lung in 512 Autopsies*

		Average Age Yr			Sex				Color				Average Body Weight Lb
					Males		Females		White		Negro		
Autopsies	No	Males	Females	All Patients	No	%	No	%	No	%	No	%	
All cases	512	63 7	65.9	65 6	295	57 6	217	42.4	461	90 0	51	10 0	132
With thromboembolic lesions	132	70.3	70 6	70.5	59	20 0	73	33 6	117	25.5	15	29 4	125
Without thromboembolic lesions	380	64.2	63.5	64 0	236	80 0	144	66 4	344	74.5	36	70.6	133

Sudden death occurred in 24, or 18%, of the patients in this study who had thromboembolic lesions in the lung Clinically, these cases demonstrated the textbook picture of sudden, unexpected death, however, at the bedside these were often diagnosed as coronary occlusion Autopsy showed that 18 of this group had large, coiled, loosely impacted emboli in one or more of the lobar arteries

In six instances of sudden death, emboli in medium-sized pulmonary arteries constituted the principal finding at autopsy The clinical and experimental studies of de Takats and Jesser[11] have emphasized that patients may die from a small embolus obstructing an insignificant area of the lung, it is felt that a widespread radiation of autonomic reflexes occurs during pulmonary embolism and that this may contribute to the cause of death It is well known that in the leg, embolic occlusion of a relatively small artery may cause rapid blanching of the entire limb, massive spasm, initiated at the site of the impacted embolus, sweeps up and down the arterial tree, and the entire extremity is rendered anoxic Similarly, the impaction of an embolus, large or small, in a pulmonary artery may evoke spasm through the entire pulmonary arterial tree This spasm, if severe, would account for sudden anoxic death

The subacute clinical pattern of pulmonary embolism was observed in 55 cases, this represents 42% of deaths associated with pulmonary embolism and 11% of deaths occurring in all cases in which autopsy was performed in this study In this group the period of terminal illness usually extended over a period varying from several days to a few weeks This protracted terminal illness, accompanied by increasing respiratory symptoms, was usually interpreted at the bedside as bronchopneumonia The cause of death as defined at autopsy usually came as a surprise to the clinician This "quiet" form of pulmonary embolism is not widely realized in general practice In 32 cases in which there was a subacute course clinically, massive adherent emboli, often associated with lung infarcts, were found at autopsy These cases were particularly interesting clinically because of the deeply rooted textbook conception that massive pulmonary embolism usually causes sudden death, the present study indicates on the contrary, that with massive embolism a terminal illness prolonged over several days is commoner than sudden death

Chronic terminal illness was present clinically in 53 or 40%, of the patients with thromboembolic lesions in the lung Well-attached emboli associated with lung infarcts of varying age were usually observed at autopsy These findings indicated that the embolic process in these cases was chronic and recurrent and did not represent merely an agonal complication In many instances only small-caliber arteries were occluded, however, in 22 cases in this group there was massive pulmonary artery occlusion, these were mainly cases of ununited fracture of the femur in severely debilitated patients with large decubital ulcers Femoral vein thrombi were usually evident

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[11] De Takats G and Jesser J H Pulmonary Embolism Suggestions for Its Diagnosis Prevention and Management, J A M A 114 1415 (April 13) 1940

Clinically, in patients with chronic syndrome of pulmonary embolism, death was generally associated with no sudden terminal change, in most instances the patients died quietly, often respiratory symptoms were remarkably minimal, pulmonary findings clinically being overshadowed by other major pathological processes such as renal or malignant disease

FACTORS CONTRIBUTING TO PULMONARY EMBOLISM

Age and Sex—As noted previously in table 2, the incidence of pulmonary embolism in the adult population increases with age These findings coincide with the reports by Carlotti,- Roe and Goldthwait,[7] and others The present study stresses particularly the great frequency of thromboembolic disease in the seventh and eighth decades, in the extremely aged, pulmonary embolism may, in fact, be the commonest direct cause of death In the present study the cases of pulmonary embolism occurring in the later decades account for a much larger proportion of the total incidence than is evident in reports in the older literature This difference may be related, in part, to the consistent rise in average longevity that has occurred in the general population Since pulmonary embolism is largely a disease of old age and since the older age group makes up an increasingly larger proportion of the total population, a gradual rise in the total incidence of pulmonary embolism in a given community may be expected in the future

Sex difference influenced the incidence of pulmonary embolism almost as much as the factor of aging The occurrence of thromboembolic disease was significantly greater in women than in men As indicated in table 4, 33 6% of women and 20% of men showed thromboembolic lesions This incidence is in agreement with the findings of Morgan,[9] who, in a similar study, reported pulmonary embolism in 30 8% of women and 20 5% of men The reason for the difference in incidence in the sexes is not readily evident Phlebothrombosis, according to Hunter and his associates,[12] occurs with almost the same frequency in men and women In the present series the average age at death in both sexes was practically the same The resolution of this problem, the cause of the difference in incidence of thrombotic disease in the two sexes, merits further investigation

Besides age and sex differences, other factors relating to the cause of pulmonary embolism were explored during the course of this investigation It is evident that many bodily mechanisms influence the onset, course, and final effect of thromboembolic disease in the lung Three phases in the process present themselves for consideration formation of the thrombus, detachment of the thrombus, and impaction of the embolic mass

Formation of Thrombus—A preexisting thrombus in a systemic vein is the prime cause of embolic disease of the lung Parenthetically, it can be stated that the prevention of pulmonary embolism lies in the prevention of thrombosis of peripheral systemic veins The building up of a thrombus is related to alterations in the clotting mechanism of the blood, slowing of the blood flow, and local changes that may be present in the lining of blood vessels It was not within the scope of this study to investigate the clotting mechanism of blood in the cases studied Whether the chemical coagulability of the blood increases with age is not well defined, this should be further investigated The older age group is, however, subject to many minor intercurrent illnesses that are known to increase coagulability of blood, this circumstance may play an important role in effecting a higher incidence of thrombosis and embolism in the older age group

Detachment of Thrombus—Early in this study attention was sharply directed to one clinical factor that strongly influenced the occurrence of pulmonary embolism In many cases in older persons in relatively good health sudden massive embolism developed after a period of bed rest for a minor illness such as an upper respiratory infection, such patients were stricken fatally when ambulation was resumed It is likely that stasis of the venous blood flow associated with enforced bed rest sets the stage for thrombosis, with the return to ambulation, detachment of loose, newly formed thrombi in the lower extremities results in fatal embolism In some instances embolism occurred entirely without prodromes, sometimes during sleep, in persons previously apparently well

Many cases of thromboembolic disease were initiated by inflammatory processes in the tissues of the lower extremities Decubital ulcers often gave rise to thrombosis in extremital veins In 19 cases, recent fracture of the femur led to femoral vein thrombosis and pulmonary embolism Considering the entire series of cases with pulmonary embolism, relatively few showed clinical signs of venous thrombosis prior to death, femoral phlebothrombi, though present, were often silent before embolization In 32 of the 132 cases of thromboembolic disease of the lung in this study, thrombi were visible in the proximal segment of the femoral vein at autopsy or could be expressed from the vein by "milking" the extremity It is likely that a considerably larger number of thrombi were present, since dissection of the limbs was usually restricted in the autopsy permission, confirmation of suspected deep venous thrombosis often was not available Hunter and associates[12] studied phlebothrombosis in the lower extremities in 351 unselected autopsies Thrombi were found in the deep veins of the leg in 52 7% of middle-aged and older persons who had to remain in bed for varying periods Ceelen[10] has stressed the frequency of pulmonary embolism in the presence of venous thrombosis "In very careful dissections of the arteries of the lungs, in cases where there are thromboses in other parts of the body, there will be found emboli in the lungs in 75% of cases"

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[12] Hunter, W C, Sneeden, V D, Robertson T D, and Snyder G A C Thrombosis of the Deep Veins of the Leg Arch Int Med 68 1 (July) 1941

Impaction of Embolic Mass—Impaction of the embolus is the event responsible for the initiation of the immediate clinical effects of the thromboembolic process Correlation of the clinical course with the autopsy findings indicated that there is a wide variation in the effect produced by the impaction of an embolus in a pulmonary artery As noted previously, often a relatively small embolus precipitated death On the other hand, occlusion of a large portion of the pulmonary vascular bed was in some instances tolerated for long periods There was often no reasonable explanation for this wide variation in clinical effect It was noted, however, that if the functional reserve of the lungs or the heart had been reduced by antecedent disease and if congestive failure or other cardiorespiratory embarrassment was already present, the effect of pulmonary embolism tended to be intensified

Other Factors—Various other constitutional and environmental factors were considered in studying the occurrence of pulmonary embolism In reference to race, 90% of the patients studied in this series were white and 10% were Negro The incidence of pulmonary thromboembolic lesions in white patients as noted in table 4 was 25 5%, the incidence in Negro patients was only slightly greater, 29 4%

Cardiac disease has been cited [13] as an important antecedent in thromboembolic disease The circulatory stasis associated with congestive heart failure tends to favor the formation of extremital venous thrombi Congestive heart failure of varying degree is common in patients of the older age group, in the present study it appeared evenly distributed in cases with and without pulmonary embolism As noted previously, pulmonary embolism in patients with antecedent heart disease was less well tolerated than in other patients Pulmonary embolism occurred slightly more frequently in patients with hypertension than in persons with normal blood pressure

Obesity has been pointed out as a constitutional factor contributing to the development of thromboembolic disease, particularly during the postoperative state [14] In the cross section of population in the present study neither the postoperative state nor obesity played an important role in influencing thromboembolic disease Postoperative deaths were relatively few in the series studied The average body weight for all persons who came to autopsy was 132 lb (59 9 kg), for the group with pulmonary embolism, 128 lb (58 1 kg) Only 3% of the persons, both with and without pulmonary embolism, were over 200 lb (90 7 kg) in weight

Malignant tumors are sometimes considered to be a direct factor in causing thromboembolic disease In this series of 512 autopsies there were 70 cases of malignant tumors, in 28 of these cases the disease was far advanced and there was extensive invasive growth and metastasis at the time of death Pulmonary embolism was present in 33 3% of cases in which there were far-advanced malignant growths Arterial occlusions in most instances occurred in vessels of small caliber The number of neoplasms in the present study constitutes a small group, however the results indicate that, although the incidence of pulmonary embolism in patients with malignant disease is high, it is not significantly greater than that of the older age group in general Most malignant disease, like most pulmonary embolism, occurs in the older age group The high incidence of thromboembolic disease reported in patients with malignant disease may indicate merely that embolism is common in the cancer age, not that it is actually related to the presence of cancer

Climatic and seasonal changes have been suggested as being of some importance in influencing the incidence of pulmonary embolism In Columbus, Ohio, the site of the present study, the weather changes occurring during the cycle of the seasons are moderate but distinct The incidence of pulmonary embolism was not significantly influenced by seasonal changes Most investigators who have studied the problem have observed a uniform occurrence of pulmonary embolism through the seasons of the year [15] In the summer months thromboembolic lesions were found in 26% of patients who died and who came to autopsy, in autumn in 29%, in winter in 26%, and in spring in 31%

SUMMARY AND CONCLUSIONS

Pulmonary embolism is of far wider occurrence than is generally realized, in the present study, it was one of the commonest direct causes of death in the aged Its incidence will probably increase, since it is primarily a disease of old age, since the older age group is growing, and since many types of bacterial terminal illness are being controlled In this study, three clinical patterns could be distinguished in cases of pulmonary embolism sudden death, usually diagnosed as coronary occlusion, involving the major branches of the pulmonary arterial tree, a subacute form that usually resembled terminal bronchopneumonia, in which the large and medium-sized pulmonary arteries were affected, and the chronic clinical form usually incident to prolonged terminal illness, in which frequently only the small arteries were occluded All three forms of the disease had frequently been wrongly diagnosed during life Three factors strongely influence the occurrence of pulmonary embolism age, sex, and periods of enforced bed rest The greater frequency of incidence in women than in men is unexplained and should be the subject of further study

The results of this study tend to dispel two textbook suppositions that are deeply rooted in medical thinking first, that pulmonary embolism is mainly a postoperative complication, and, second, that it is characteristically a sudden and rapid form of death The vast majority of cases occurred in medical patients, and only a small percentage of patients died suddenly As the wide variation in its clinical picture becomes better recognized, and as the criteria for its diagnosis becomes clarified, pulmonary embolism will be correctly diagnosed more often, and more extensive prophylactic and therapeutic measures will be pursued

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[13] White P D Pulmonary Embolism and Heart Disease Review of 20 Years of Personal Experience Am J M S 200 577 1940 Be [illegible]

[14] Henderson E F Fatal Pulmonary Embolism A Statistical Review Arch Surg 15 231 (Aug) 1927

[15] Short [1] Ochsner and others [4] McCartney [4]

J.A M A , Sept 18, 1954

ANESTHESIA THEN AND NOW—1914 TO 1954

CHAIRMAN'S ADDRESS

Moses H Krakow, M D , Bronx, N. Y

I shall limit my remarks to the subject of anesthesia as a specialty and its place in American medicine The period I am going to cover extends from 1914 to 1954 and represents exactly 40 years of medical practice largely devoted to anesthesia Back in 1914, the medical graduate did not have as much of a problem as to the type of practice he would engage in as the graduate of today Specialization then was an exception The main concern of the graduate was a good internship, which meant a choice of either a surgical or a medical appointment with allied specialties thrown in, anesthesia was not among those specialties As a matter of fact, the medical schools did not even have it in the curriculum No reference to it was made at any of the lectures or demonstrations The student witnessing an operation was mainly impressed by the performance of the surgeon It did not occur to him that the patient had to be anesthetized before any surgery could be done

The medical profession at that time did not consider anesthesia important enough to be solely in physicians' hands Anyone under supervision of a surgeon could administer anesthesia, and by default it was largely taken over by nonmedical technicians Hospitals, having to provide anesthesia, either employed nonmedical personnel or had a physician-anesthetist appointed to supervise anesthesia These physicians did not have to qualify for this position and usually dropped anesthesia as soon as appointed to the regular surgical staff Incidentally, I accepted such a position soon after completing my internship, and must confess that I too intended to use it as a steppingstone to a surgical appointment However, impressed with the importance of anesthesia, I decided to continue as anesthetist to the hospital even after receiving a surgical appointment and served in a dual capacity for several years In 1927 I was elected a fellow of the American College of Surgeons Shortly thereafter, feeling that I could contribute more to the welfare of patients by devoting full time to the practice of anesthesia, I did so It is not surprising that in view of the status of anesthesia, as described, few physicians were willing to make it their career Yet, a number of men with strong conviction that anesthesia was a vital part of medical practice specialized in it and did all they could to teach it and improve it

DEVELOPMENT

The first anesthesia society in the United States was formed in New York City in 1905 as the Long Island Society of Anesthetists The group consisted of nine men, and these pioneers, together with a few other scattered throughout the country, formed a nucleus for what was to become the American Society of Anesthesiologists, almost 4,500 strong today Those few men who did so much for so many anesthesiologists deserve everlasting gratitude By 1912 the founders' group reached 50 and became the New York Society of Anesthetists The progress of this society was rather slow, and by 1935 there were just several hundred members, but as these men were located all over the United States, it then became the American Society of Anesthetists, which was incorporated in 1936 The name was again changed to the American Society of Anesthesiologists in 1945 The society has devoted itself ever since its organization to the promotion and support of scientific progress of this specialty, and made an early attempt to certify its own members as fellows Eventually, in 1946, the American College of Anesthesiologists was established, and from then on it has conferred fellowships on the members of the society In 1937, after much preliminary spade work the Advisory Board for Medical Specialists was convinced that anesthesia rated a board of its own A board subsidiary to the Board of Surgery functioned for two years, and finally, in 1939, an independent American Board of Anesthesiology was organized and incorporated

In 1941, the House of Delegates of the American Medical Association approved the Section on Anesthesia The same year, it also passed a resolution affirming that anesthesia is the practice of medicine and should be considered as a medical and not a hospital service This resolution assumed a great importance, because, with the advent of the prepaid hospital and medical insurance, it became necessary to distinguish between hospital services on one hand, and medical services on the other The Blue Cross consistently maintained, and continues to maintain, that even though anesthesia is practice of medicine, it should, nevertheless, be included in hospital services This has caused constant misunderstanding and irritation between patients, hospitals, and anesthesiologists

THE PRESENT PICTURE

Forty years ago anesthesia did not exist as a specialty It was not taught in medical schools It was not recognized by organized medicine, and, with few exceptions, it was in the hands of nonmedical personnel Today, most medical students receive some didactic and clinical instruction in anesthesia Many schools have professors of anesthesia, heading a separate department Every graduating class today has several physicians who expect to specialize in anesthesia and are seeking residencies that are approved by the American Board of Anesthesiology and the A M A

As previously stated, the A M A is now on record that anesthesia is a recognized specialty and that it is a medical and not a hospital service The public in general is becoming more and more aware of the importance of anesthesia and of the physician-patient relationship with anesthesiologists Most surgeons today are willing and happy to let the anesthesiologists handle anesthesia problems Only a few die-hards still insist that a surgeon alone

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Read before the Section on Anesthesiology at the 103rd Annual Meeting of the American Medical Association, San Francisco, June 23, 1954 is responsible for the conduct of the case and, therefore, should be making decisions regarding anesthesia too I believe that the supply of anesthesiologists cannot today adequately meet the demand This leads to the consideration of the future of the specialty and what can be done about it.

FUTURE OF ANESTHESIOLOGY

If I may be permitted to speculate a bit, I would like to make several predictions First, anesthesia has been definitely established as a medical specialty, and it is bound to progress with the rest of medicine I believe that whatever is in store for all of medicine is also in store for anesthesiology It makes it imperative, therefore, that anesthesiologists go along with their medical colleagues, do all they can to preserve private practice of medicine, and follow the code of ethics of the A M A and the American Society of Anesthesiologists Second, there are some well-meaning people in this country who claim that not enough physicians are being graduated from our medical schools to properly take care of our population and that the medical profession is actually creating a monopoly The A M A denies these allegations and insists that the country does have enough physicians and that the fault is mainly in distribution I am not going to go into the merits of this question, but I think that anesthesiology is short of trained physicians There are about 10,000 hospitals in the United States, and if one qualified anesthesiologist were put in each one of them at least 10,000 would be needed, and of course, many hospitals need more than one It is my opinion, and hope, that more graduates of medicine will enter anesthesia, and that some day the supply will meet the demand Of course, this will require constant and diligent attention, collectively and individually

The American Society of Anesthesiologists is doing an excellent job in public relations, but it is incumbent on every anesthesiologist to do his part to educate the public and to interest the medical graduate in anesthesia Those who are professors of anesthesiology in medical schools could, I believe, do a real job in this respect Third, hospital and medical insurance today is playing a very important role in practice of medicine in general as well as in anesthesia I believe that here too, with proper approach, anesthesiologists will some day be in a position to negotiate with these insurance companies to the advantage of everyone In conclusion, I think I am justified to say that anesthesiology has an important role in the practice of medicine, and that, with proper cooperation of all agencies concerned with the treatment of the sick, physicians can achieve their goal—better medicine and best medical care for the people

1749 Grand Concourse

ANORECTOCOLONIC SIDE-EFFECTS OF ANTIBIOTIC THERAPY

Robert Turell, M D
and
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The occurrence of toxic side-effects following the administration of antibiotics is by now well understood by the medical profession Some authors believe that the intestinal side-effects may be brought about by the destruction of some of the important enteric organisms, namely, Escherichia coli, that in turn ordinarily suppress intestinal micrococci (staphylococci) and fungi The administration of an antibiotic with a spectrum affecting Esch coli may produce a suppression or destruction of the propagation of that organism and give antibiotic-resistant micrococci, Candida (Monilia), especially Candida albicans, or other yeast or yeast-like organisms a chance to replace the normal bacterial flora in the intestinal tract. However, it should be remembered that superinfection with antibiotic-resistant micro-organisms, including both fungi and bacteria, is a complex phenomenon and that most cases of localized moniliasis are not actually instances of this disease [1] Fairlie and Kendall [2] stated that the concept that enteritis caused by the parenteral usage of penicillin and dihydrostreptomycin "is due to suppression of normal intestinal flora, permitting overgrowth of intestinal staphylococci appears to be oversimplified " These authors believe that "A direct stimulation of the Staphylococcus by antibiotics must be considered " Sublethal dosages of drugs, according to an established pharmacological law, are known to be capable of acting as stimulants In general, the exact relationship of fungal or yeast-like infections accompanying or following treatment with antibiotic agents is far from clear The precise role of the local irritating effect (Bryer) of the antibiotics and the interference with vitamin formation by enteric organisms on the initiation of adverse side-effects still remains to be assessed As far as the anorectocolonic symptoms are concerned, our observations [3] concur with those of Pappenfort and Schnall,[4] that preexisting skin or mucosal lesions "probably are important predisposing factors " It is known that practically all antibiotics including the newest ones, namely, erythromycin and carbomycin (Magnamycin), cause gastrointestinal side-effects The incidence of these side-effects has been estimated at 20% in patients taking the recommended dosage of the antibiotic [5], the individual reaction among these patients varies enormously The important anorectocolonic side-effects are diarrhea and anal pruritus, with or without associated burning and perianal skin manifestations [6] As far as the anorectal syndrome is concerned, there appears to be nothing so distinct or pathognomonic about this condition to justify the designation of a "distinctive clinical entity," [7] except for the lack of diurnal-nocturnal variation of pruritus These patients usually have no nocturnal itching, so their sleep is undisturbed

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[1] Kligman A. M Are Fungus Infections Increasing as Result of Antibiotic Therapy? J A M A. 149 979 (July 12) 1952.

[2] Fairlie C W and Kendall R. E Fatal Staphylococcus Enteritis Following Penicillin and Streptomycin Therapy J A M A 153 90 (Sept 12) 1953

[3] Turell R. Proctologic Aspects of Constipation and Diarrhea Ann New York Acad Sc 58 525 (July 15) 1954

[4] Pappenfort R. B., Jr., and Schnall, E. S Moniliasis in Patients Treated with Aureomycin Clinical and Laboratory Evidence That Aureomycin Stimulates Growth of Candida Albicans A. M A. Arch. Int. Med 88 729 (Dec.) 1951

[5] Jackson, G G., and Dowling H F Adverse Effects of Antibiotic Treatment GP 8 3- (Aug) 1953

METHOD AND MATERIAL

One hundred thirty-six patients with the anorectocolonic syndrome seen in private and clinic practice were studied, treated, and followed In 125, this syndrome followed the oral administration of a broad spectrum antibiotic drug, while in 11 persons erythromycin was the causative agent Diarrhea as a sole complication usually appeared within 12 to 72 hours after the ingestion of variable amounts (sometimes two or three doses) of the antibiotic and was noted in 37 patients, diarrhea in association with anal or anogenital pruritus was noted in 22 additional persons The itching appeared either at the same time or, more commonly, several days after the onset of the diarrhea Pruritus alone was noted in 51 patients, while pruritus associated with anal or anogenital soreness and burning was observed in 26 additional patients

Under the term of diarrhea are included (1) 29 patients who had approximately 4 to 5 loose stools per day without gross or microscopic blood or pus, (2) 27 patients who had only 1 to 2 daily bowel movements of loose stool without gross or microscopic blood or pus, and (3) 3 patients with dysentery of moderate severity —7 to 10 liquid stools daily with blood and pus The diarrhea in the last three patients developed within three to eight days after the ingestion of chlortetracycline (Aureomycin) in two and of oxytetracycline (Terramycin) in one These drugs had been given in dosages of 250 mg every six hours. All three patients had in the past received penicillin (and perhaps also other antibiotics) without reaction Endoscopy for a distance of about 10 cm from the anal verge revealed a uniformly reddened, injected, edematous mucosa with tiny scattered superficial ulcerations The mucosa was friable and bled on slight trauma, this resembled the endoscopic picture of nonspecific ulcerative colitis Gram stains of mucosal smears revealed micrococci, their exact genus was not identified

Routine sigmoidoscopic examinations of the remaining 56 patients with diarrhea showed a mild injection of the mucosa of the ampulla in 19 patients, mild cryptitis and papillitis in 7, and mild to moderate excoriation of the perianal skin and normal appearing intestinal mucosa in 21 Associated antecedent lesions in 38 patients included tabs and/or redundant perianal skin, moderate to large mixed piles, and hypertrophied papillae or fibro epithelial polyps Very important incidental findings were polypoid adenocarcinomas of the rectosigmoid in two patients and a sessile benign adenoma in a third [8] Unlike sigmoidoscopy, radiography of the colon with the aid of a double contrast medium was not performed routinely, this examination was carried out in about 15 instances and was reported to be normal, except for varying degrees of spasm The antibiotics that had been administered to these persons were chlortetracycline in 33 patients, oxytetracycline in 20, and erythromycin in 6

Anal pruritus (without diarrhea) occurred and was studied in 77 patients The pruritus usually appeared within several days after ingestion of the antibiotic, but in some instances pruritus appeared weeks later The causal relationship was sometimes established on the basis of the absence of diurnal-nocturnal variation The involved skin was practically normal, except for scratch marks, in 51 patients of whom 27 were women, in the remaining 26 persons, 13 of whom were women, the pruritus was associated with a mild to moderate moist dermatitis accompanied by superficial excoriations and multiple fissures Antecedent anorectal lesions, similar to those described for diarrhea, were found in 42 patients Also of significance was the incidental finding in three patients of adenomas of the rectum, one of which was the seat of an early noninvasive malignant lesion [8] This again points up the necessity for a complete proctologic survey, including sigmoidoscopy, and roentgenography when indicated The gynecologic examinations were essentially normal, except for mild to moderate excoriation of the vulva in 13 women In 17 cases of anogenital pruritus, the vulval itching was considerably more severe than the anal pruritus

The causative antibiotics that had been administered in this group of patients were chlortetracycline in 45, oxytetracycline in 25, erythromycin in 5, and tetracycline (Achromycin) in 2

Interrogation disclosed that over 40% of all 136 patients had had antecedent multiple complaints such as vague abdominal pain, fatigue, passage of mucus from the rectum, insomnia, nervousness, and others As a group they appeared to be unstable, hypochondriacal, and "suggestible"[6c] and exhibited a great deal of self-pity Most of these persons were engaged in intellectual pursuits, a few were clear-cut neurotics who utilized their complaints for psychological needs A small number of these patients, having read an item in the newspaper concerning the "reckless use" of the antibiotics,[9] blamed their physicians for having prescribed the drugs for "trivial trouble" that had caused their present "new" but avoidable disease Certainly, we are in favor of informing the public, but such information should be complete, and, in this case, it should have made clear that reactions might be inevitable

CLINICAL RESULTS

Diarrhea.—The three cases of dysentery that showed micrococci on smear responded promptly after discontinuation of the use of the causative antibiotic and the administration of large doses of carbomycin or erythromycin [10] combined with bed rest and the administration of fluids and electrolytes It is important (1) to recognize this complication and to identify the causative organism promptly, (2) to employ an antibiotic to which the causative organism is susceptible, and (3) to supply (or replace) the lost electrolytic elements and fluid In our experience, the therapeutic problem is not the same as that encountered in nonspecific ulcerative colitis [7] This or a similar therapeutic regimen has been successful in many of the seriously ill, hospitalized patients suffering from either ulcerative or membranous micrococcic enteritis [10a] One word of caution should be given Some organisms have already developed a resistance to the recently introduced erythromycin This is evidenced by the experience reported here and by the occurrence of acute dysentery following the oral administration of this antibiotic The development of new antibiotics to which the present resistant bacteria are susceptible becomes increasingly important

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[6] (*a*) Harris, H J Aureomycin and Chloramphenicol in Brucellosis with Special Reference to Side-Effects, J A M A **142**: 161 (Jan 21) 1950 (*b*) Tomaszewski T Side Effects of Chloramphenicol and Aureomycin, with Special Reference to Oral Lesions, Brit M J **1** 388 (Feb 24) 1951 (*c*) Willcox, R R Anorectal Syndrome and Other Mild Side-Effects of Terramycin, Lancet **2** 154 (July 28) 1951

[7] Manheim, S D, and Alexander R. M Further Observations on Anorectal Complications Following Aureomycin Terramycin, and Chloromycetin Therapy, New York J Med **54** 231 (Jan 15) 1954

[8] Turell, R, Krakauer, J S, and Maynard, A de L Colonic and Rectal Function and Disease, Surg, Gynec & Obst **96**: 313 (April) 1953

[9] Antibiotic Warning, New York Times, Jan 6, 1952

[10] Dearing, W H, and Hellman, F R Micrococcic (Staphylococcic) Enteritis as a Complication of Antibiotic Therapy Its Response to Erythromycin Proc Staff Meet, Mayo Clin **28** 121 (March 11) 1953

Most of the other cases of diarrhea responded to simple *medication along with the discontinuation of the offending* antibiotics The addition of carbomycin or erythromycin was of apparent benefit in nine patients Reassurance of the patients seemed of very significant value, as many of these patients were highly suggestible [6c] As a sole form of treatment, camphorated tincture of opium (paregoric), in doses as small as 4 cc given twice daily preceded by one dose of 30 cc of castor oil, was sufficient for the control of the loose stools in many patients Buttermilk with or without acidophilus milk (yogurt) was of no help, and in fact in some patients these agents aggravated the diarrhea or produced mild abdominal cramps

Ten patients with diarrhea were treated by withdrawing the offending antibiotic, administering a placebo (a capsule containing either sodium chloride or lactose), and feeding a high protein, high vitamin, and high carbohydrate diet without those foods the patients did not care to eat or to which they thought they were sensitive For example, 3 of the 10 patients were afraid to eat ripe bananas, while the other 7 believed this fruit to be extremely desirable All 10 patients were completely well within less than a fortnight and have remained so to date

Pruritus —The anal pruritus that was associated with loose stools was treated by the application to the perianal area of a bland ointment just prior to defecation The bulk of the ointment was removed after defecation (the Howard Lilienthal treatment) Whenever this maneuver was impractical, the perianal area was cleansed after defecation with water and a detergent such as Lowilla, and this was followed by the application of a bland ointment, the use of dry tissue paper was interdicted Pruritus, anal or anogenital, usually without associated diarrhea appeared later than diarrhea and lasted longer [6c] In some patients, pruritus disappeared spontaneously, in others it responded easily to simple therapy, but in still other persons it persisted for a variable period of time in spite of aggressive therapy even after the spontaneous or therapeutically induced return of the normal intestinal flora

Fifty-four patients responded well within less than two weeks to (1) the discontinuation of the offending antibiotic, (2) the interdiction of the use of dry toilet paper, and (3) the topical application twice daily of an ointment containing 5% sodium caprylate and 5% sodium propionate in Aquaphor, a detergent skin ointment containing hydroxyl animal fats Additional general measures included the omission of alcoholic beverages, highly seasoned foods, and caffeine-containing drinks (coffee and tea) and the administration of phenobarbital or bromides Based on past experience,[11] in 12 patients it was advised that extirpation of associated anorectal organic lesions be carried out at a propitious time In general, we agree with Kallet and Davlin [12] that "local therapy which has been useful in other forms of perianal irritation has proved quite effective" in these cases In our experience it has hardly been "a therapeutic problem of great magnitude " [12]

Twelve patients responded well within a period varying from two to six weeks to the general measures outlined in addition to the topical application of a bland ointment, such as aqua rosae Hence it is our assumption that "*specific antibiotic pruritus*," *at least in some patients*, disappears spontaneously, it is our belief that spontaneous recoveries have been grossly underestimated We believe this in spite of Manheim and Alexander's views to the contrary [7]

Four patients responded quite satisfactorily, first to the parenteral administration of corticotropin (ACTH) [13] and later to the topical application of free alcoholic hydrocortisone ointment, while eight others tested experimentally failed to derive any benefit from either hormone These hormones are at best "morbistatic" and are seldom curative in anogenital pruritus of other causes The cases of the remaining seven patients have remained unsolved problems

Acidophilus milk (yogurt) was first used by Willcox [6c] but later was championed by Manheim as a veritable cure or, along with buttermilk, as one capable of producing striking improvement This does not conform with our experience These substances were given in large amounts (to the point of toleration) alternately or in combination to 10 patients The procedure was of questionable benefit in three patients and utterly ineffective in the remaining seven Nine of these 10 patients have subsequently responded quite well to the ointment of sodium caprylate and propionate applied topically [14] plus the general measures already outlined

Sodium caprylate administered by mouth has yielded good results in several patients but has failed in others [6], our studies are still in progress Recent studies showed that intestinal moniliasis may be successfully eradicated by the administration of caprylic acid-resin complex in capsules that contain 48 to 52% of the complex fatty acid This agent has little, if any, inhibitory action on the growth of normal intestinal flora [15] The high incidence (over two-thirds) of recurrence [7] is not in accord with our experience and suggests inadequate initial therapy or failure to eliminate the contributory factors Also, none of our patients has "developed conditions necessitating surgery "

[10a] Dearing and Heilman [19] Fairlie and Kendall [2]

[11] Turell R. Treatment In Proctology Baltimore Williams & Wilkins Company 1949

[12] Kallet H I, and Davlin L P Anal Irritation Following Use of Antibiotics, Am Pract & Digest Treat 3 377 (May) 1952

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[15] Neuhauser I Successful Treatment of Intestinal Moniliasis with Fatty Acid Resin Complex A M A *Arch Int Med* 93 53 (Jan) 1954

COMMENT

While micrococcic enteritis is serious, we agree that the anorectal syndrome though annoying, is not "of a serious nature " The large number of patients observed by proctologists is no indication of the actual incidence of the adverse side-effects of antibiotics It should be kept in mind that in the United States, during the year of 1951 *alone 324 tons of penicillin have been produced,* 167 tons of streptomycin and 250 tons of the broad spectrum antibiotics Furthermore, "more than one-half of all prescriptions written *during 1951 were for anti*biotics and Americans spent one-third of their entire drug bill during that year for antibiotics In each instance, these figures appear to have shown *continuous increase* during 1952 and 1953 "

It seems to us unfair and certainly unjustified for men other than *qualified chemotherapeutists to make the* statement that "physicians have prescribed antibiotics with increasing frequency, and, unfortunately, at times without specific indication " The intelligent clinician is neither influenced nor deterred by the possible side-effects when there is a clear-cut indication for the use of an antibiotic Exaggerated fear of complications may lead to ineffective therapy as exemplified by the following experience A urologist in charge of a service in a large general hospital told one of us that he has discontinued the use of oxytetracycline because of side-effects and is now employing chloramphenicol instead because of the alleged lesser incidence of side-effects Evidently, he did not know that large amounts of the latter drug are excreted in the urine in a biologically inactive form[16] and that it is an inferior antibiotic for the treatment of urinary tract infection In 1953, Miller and Walker reported administering as much as 5 gm of oxytetracycline orally daily for four months to 70 patients with tuberculosis, and all tolerated this large amount of the drug quite well No deviations from the normal were found proctosigmoidoscopically in patients who experienced diarrhea Similar observations have been made at Harlem Hospital where antibiotics, especially the mycins, have been used extensively and in large quantities and dosages since their inception

SUMMARY AND CONCLUSIONS

While micrococcic enteritis may be of serious import, *the results of this study concur with the belief that* the anorectocolonic side-effects of antibiotics are not of a serious nature Our study also supports Kallet and Davlin's *statement that "local therapy which has been useful in* other forms of perianal irritation has proved quite effective" in these cases We have found also that spontaneous *recoveries* occur in quite a few patients; this matter has been much underrated as has the effectiveness of placebo in many patients We also found that acidophilus milk (yogurt) and/or buttermilk as a sole form of treatment are completely ineffective in either diarrhea or pruritus

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THE VALUE OF A ROUTINE ABDOMINAL FILM

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The practice of taking a routine chest roentgenogram for all patients admitted to the hospital is tending to become universal Few clinicians question the value of such films, they have come to be accepted as a part of routine studies, similar to the blood cell count and urinalysis This is true despite the fact that the percentage of films with abnormal findings is small compared to the number of "negative" chest roentgenograms Assay of the exact value of a routine chest roentgenogram is difficult One of the most comprehensive of community-wide chest roentgenogram surveys has been made by the division of chronic disease and tuberculosis of the Public Health Service[1] during the past five years In all, 5,840,897 chest roentgenograms were made on 70 mm film in 17 different communities scattered over the United States The percentage of abnormal roentgenograms varied from 2% up to 7 2%, *with an average of about* 3 6% These so-called positive roentgenograms were read as such not only because abnormalities suggestive of tuberculosis were noted, but because nontuberculous chest diseases as well as cardiovascular abnormalities were questioned on the initial roentgenogram An attempt was made to obtain 14 by 17 in roentgenograms of the persons who had "positive" results on 70 mm films, so that, with these larger films, some of the so-called positives could be excluded However, for practical purposes, it appears justifiable to use the figure of 3 6% as an average for the number of chest roentgenograms that will be "positive" for pulmonary disease, cardiovascular abnormalities, or both, in the general population

Routine chest roentgenograms for patients admitted to the hospital are more productive than a routine survey on a general population of essentially normal persons Figures vary tremendously according to the type of hospital, the type of patients admitted, and the care with which the roentgenograms are studied and reported by the roentgenologist At the Veterans Administration Hospital in Grand Junction, Colo , a 152-bed general medical and surgical hospital, the percentage of admission roentgenograms reported as showing "possible tu-

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[1] Community-Wide Chest X-Ray Survey, Publication No 222 Federal Security Agency United States Public Health Service, 1952

berculosis" has varied from 0 6 to 3 87%, with a general average of 2 19% The percentage of admission roentgenograms reported as suggestive of other pulmonary disease cardiac abnormality, or both, varied from 11 1 to 21 6%, when calculated at three month intervals over a period of three years—the average percentage being 16 02 From this it appears that as far as positive findings are concerned, the routine admission chest roentgenogram is of value in about 18% of the cases It is recognized that negative findings in a chest roentgenogram are as important in a complete and final diagnosis as positive findings The chest roentgenogram survey was originated and given great impetus by public health organizations conscientiously motivated toward the eradication of tuberculosis in the community and toward the cure of diseased persons by the logical procedure of finding the disease early. It may justly be claimed that much of the great recent progress in diminution of tuberculosis as a major threat to the community can be attributed to early case finding by roentgen examination The finding of intrathoracic disease other than tuberculosis in these studies has convinced physicians in general, and the internist especially, of the value of the routine chest roentgenogram as a subsidiary part of the physical diagnosis These routine admission studies of the chest are ordered not with the view of tuberculosis case finding but as part of a broad assay of a patient's health status

Much information in a complete physical appraisal of the health status of a patient could be obtained by supplementing the routine chest roentgenogram with a roentgenographic survey of the lower half of the torso It may be claimed that the chest lends itself to easier roentgenographic analysis because of air contrasts and that no preparation of the patient is necessary for chest survey While this is true, its importance is magnified out of all proportion. The urologist depends greatly on the preliminary kidney, ureter, and bladder film of the abdomen and is generally well qualified in its analysis from the urologic viewpoint The gastroenterologist and general surgeon can recognize much that is informative in a plain film of the abdomen[2] The orthopedist uses what is essentially a plain film of the abdomen as part of his roentgen study of the lumbar spine Just as the posteroanterior view of the chest may be of value to the cardiologist as well as to the chest specialist, so may a survey roentgenogram of the abdomen be of value to the gastroenterologist, urologist, obstetrician, gynecologist, and orthopedist in their assays of a patient When it is considered that attempted palpation of the kidneys and spleen for estimation of size is commonly difficult and that even in the case of the liver, palpation is frequently inconclusive, especially in larger persons, the value of a method that could supply this information becomes evident As to the argument that preparatory cleansing procedures must be undertaken to obtain a useful roentgenogram, we have undertaken to show that this is not generally true It has been observed that an ambulatory or recently ambulatory person is commonly a better subject for survey by an abdominal roentgenogram than is the person long hospitalized and prepared by intestinal cleansing As our statistics indicate, it was seldom that an abdominal roentgenogram taken of a newly admitted patient was unsatisfactory for interpretative survey purposes, and in many of these instances the faults were technical rather than due to lack of cleansing preparation

The routine abdominal roentgen survey was more economically feasible and seemed likely to be more valuable if the same roentgenogram could be used for a variety of systems and by several specialists The kidney, ureter, and bladder roentgenogram taken with the patient supine is best adapted to study of several systems as a standard procedure for technical reasons Lying on the back allows greater standardization in roentgenographic studies than would lying prone, the patient is generally more comfortable and less likely to move when lying on his back, so that there is likely to be less technical difficulty due to body motion, the lumbar spine and the viscera most difficult to palpate, the kidneys and spleen, are brought closer to the film and therefore are shown more sharply defined with less exaggeration due to distortion by a longer object-film distance, and the bony pelvic canal is presented in a far more opened view with the patient in the supine position than in the prone position Moreover, it is somewhat of a fallacy to consider that the prone position will bring calcified gallstones closer to the film, for most right lateral views of the gallbladder filled with contrast medium will show that it lies in the middle third of the anteroposterior diameter of the abdomen We have, for these and other considerations, adopted the kidney, ureter, and bladder roentgenogram made with the patient in the supine position as routine in these studies Such a roentgenogram of the abdomen nearly always has enabled us to judge whether the liver, spleen, or kidneys are enlarged or abnormal in shape or position The psoas muscles are nearly always identified Calcifications in the abdomen and bony pelvic canal are readily demonstrated Much information is presented regarding the lumbar spine and pelvis with regard to alignment of vertebrae, old and recent fractures, inflammatory and neoplastic bone disease, and calcium content of the skeleton in nutritional and endocrinological disease

It is to be emphasized that the roentgen survey of the lower half of the torso usually is not completely adequate when a significant pathological process is demonstrated and should be supplemented by proper additional roentgenograms made with the patient in other positions by spot focus, or with contrast mediums The survey roentgenogram should be regarded, just as the chest roentgenogram, as a sort of hunting expedition in a search that may disclose disease The likely usefulness of such a study seemed to warrant a series of kidney, ureter and bladder films, all done without special preparation on a consecutive group of newly admitted patients regardless of complaint or history, at the Veterans Administration Hospital in Grand Junction

METHOD

For 242 patients consecutively admitted to this hospital in the fall of 1952, roentgenograms of the kidney ureter, and bladder were routinely made Almost all of the patients were men between the ages of 18 and 83 some had had previous admissions to this hospital A few were admitted for tuberculosis follow-up, another small group were admitted for dental work only, and many were healthy young men admitted only for tonsillectomy, herniorrhaphy or hemorrhoidectomy Approximately 10% were admitted for only examination and observation in connection with pending compensation claims and less than 25% were considered seriously ill at the time of their admission Exposures were made on the 14 by 17 in film without previous preparation of the patient at the same time the routine chest roentgenogram was taken The exposure was made with the patient in the anteroposterior position supine, and in expiration The Potter Bucky diaphragm and a 1 mm aluminum filter were used, at a tube distance of about 40 in , with an average of 68 kv , 200 ma , and exposure time of ½ second

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[2] Ettinger A, and Elkin M, Value of Plain Film in Renal Mass Lesions (Tumors and Cysts) Radiology 62 372-382 1954

A study was made of the quality of these films, they were divided into four groups ranging from those showing fine detail throughout to films of poor quality on which it seemed effort had been wasted Of 242 films, only 5, or 2%, were totally unsatisfactory because of poor technique or obscuration Fifty-two films, or 21 4%, were just acceptable, classified as fair or improvable by better technique or preparational procedure One hundred fifty films, or 62%, were classed as good, showing adequate detail throughout, and comparable with the average film for which preparational measures, such as cleansing enemas, had been taken Thirty-five films, or 14 4%, were classed as excellent in detail shown We felt that with 76% of the films showing good or excellent detail without preparation of the patient, and with 98% of films acceptable, preparational procedures in the scout film could be omitted except in exceptional circumstances A second film can always be made after preparational measures if indicated, a great saving of time and effort is obviously accomplished by making the first film without preparation

The 242 roentgenograms were read by one radiologist and graded as follows group 0, film not abnormal, of value only as a negative study, 92 (37%), group 1, film of value because it later formed a part of other studies, 114 (47%), group 2, film of value because it confirmed or reenforced clinical diagnosis, 58 (24%), and group 3, film of value because it disclosed information that otherwise might not have been obtained, 26 (11%) The percentages add to over 100 because some of the films could be classified in more than one division

The 92 cases in group 0, representing roughly one-third of the total, were valuable in diagnosis They helped to rule out such conditions as partial intestinal obstructions, abnormal calcifications, lumbar spine changes, and abdominal tumors For the 114 cases classified in group 1, the routine kidney, ureter, and bladder film served as a portion of other roentgen studies, quite a number of which were suggested by the initial film, and led to a more accurate and definitive diagnosis Since it is routine practice at this hospital to take a scout film as a portion of the gastrointestinal, gallbladder, barium enema, and genitourinary studies, a routine kidney, ureter, and bladder film is not "wasted" in terms of either the cost of the film or the technician's time In the case of a lumbar spine study, it can take the place of the anteroposterior view Some of the 58 cases in group 2, representing 24% of the total, were cases of hypertrophic changes in the dorsal spine, but such cases were not included unless they were severe or unless other definite clinical history or positive physical findings justified a diagnosis of hypertrophic arthritis

The 26 cases in group 3, 11% of the total, are the most interesting and probably the most valuable from the standpoint of diagnosis These encompassed a large variety of conditions, many of which might easily have been overlooked if roentgen studies had not been made, including hydronephosis, subluxation between the second and third lumbar vertebrae, empyema of gallbladder, heavy metal in buttocks, rotoscoliosis of the lumbar spine, arthritis of the sacroiliac joint, early Paget's disease, calcified fecalith of appendix, bony fusion of the sacroiliac joints, cholelithiasis, adynamic ileus, calcification in spleen, possibly due to tuberculosis, severe osteoporosis, hepatomegaly, tuberculous spondylitis, air in biliary radicles (led to final diagnosis of choledochoduodenal fistula), asymptomatic left renal calculus, and calcified mesenteric adenitis, possibly due to extrapulmonary tuberculosis

COMMENT

Admittedly a series consisting of 242 cases is small, however, it is felt that even this small series indicates the value of routine roentgenograms of the kidney, ureter, and bladder of all patients admitted to the hospital In 114 cases, or 47% of this series, the admission film would have been taken as a portion of other roentgen studies, thus it was economically justified In addition, in 58 cases, or 24%, the routine film added considerably to the other diagnostic studies of the patient by giving objective confirmation to conditions that otherwise would have remained merely clinical impressions Finally, in 26 cases, or 11% of the total, kidney, ureter, and bladder films were of value because they disclosed information that might otherwise have been overlooked, the figure of 11% of otherwise unsuspected disease is not insignificant These figures compare favorably with figures given for the value of routine chest roentgenograms, either in a community-wide service or on hospital admission It is our opinion that a routine kidney, ureter, and bladder survey film, without preparation of the patient, should be made a part of the admission studies on all hospitalized patients

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Tuberculous Meningitis—Tuberculous meningitis was uniformly fatal prior to the advent of streptomycin therapy Whereas short courses of streptomycin apparently saved an occasional patient, adding PAS and prolonging the original course of therapy markedly improved the percentage of survivors The addition of isoniazid holds promise of further improving the survival rate Although one may expect further losses with longer observation periods, we have reason to hope for a recovery rate of 75 per cent or more with the use of drugs currently available Obviously some will survive only to die later of causes other than tuberculous meningitis per se The presence of associated miliary tuberculosis has not affected the survival rates of our patients adversely since initiation of prolonged combined chemotherapy All five patients with combined miliary-meningeal tuberculosis, in the group herein reported, were living 8 to 18 months after beginning treatment —E J Des Autels, M D , and K H Pfuetze, M D , Current Treatment of Tuberculous Meningitis A Preliminary Report, *Annals of Internal Medicine,* June, 1954

STREPTOCOCCIC INFECTION OF THE "FIBROEDEMA" OF MELKERSSON'S SYNDROME

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Melkersson's syndrome was described in 1928[1] A patient had recurrent facial paralysis and edema of the upper lip Later lingua plicata was noted as a third symptom[2] In 1947 Kettel reviewed the literature and reported five additional cases[3] The syndrome may be familial but is not hereditary The first attacks of paralysis have occurred before the patients were 18 years old and usually before adolescence Both facial nerves have been affected alternately, and the edema, ordinarily recurrent at first but permanent later, has followed the initial attack of paralysis Rarely edema and paralysis have occurred simultaneously In a few patients the intervals between the occurrence of paralysis and the attacks of edema have been long Confined to the upper lip and cheeks (occasionally the lower lip or the circumorbital tissues have been involved) a series of transient attacks similar to angioneurotic edema have led in most patients to permanent fibrosis These attacks have been noninflammatory, although sections of the fibrotic tissues have suggested mild chronic inflammation There have been overgrowth of connective tissue, evidence of edema, atrophy of the muscle fibers, and round cell infiltration[3] This edema has not always been associated with recurrent paralysis New and Kirch[4] reported on 67 patients with permanent deformities of their lips and cheeks (occasionally of the lower lips and eyes), but only 13 had paralysis of the facial nerve In these patients mild recurrent attacks of edema preceded the fibrosis Severe deformities were corrected by plastic surgery

The cause has not been discovered for either the edema or the paralysis Clinically the first few attacks of edema have appeared angioneurotic, but later sections of the fibrotic tissues have suggested mild chronic inflammation New and Kirch believed that lymphangitis and recurring erysipelas could be excluded A patient, now past 50, with this syndrome has been under medical observation since early childhood She has had recurrent facial paralysis and edema with fibrosis of the lips and cheeks with a superimposed streptococcic infection The treatment of this infection was reported in 1933[5]

REPORT OF A CASE

The patient was born in 1898 There have been no known hereditary atopic allergies in the family Her mother had recurrent facial erysipelas and an aunt had recurrent facial paralysis Paralysis occurred when the patient was 7 14 16 26 and 28 twice on the right and three times on the left side of the face Recovery was nearly complete after each attack Now at 56 she has but slight residuum on the left Photographs show that her lips became fuller in early adolescence Ridges and areas of local thickening appeared on the buccal mucous membrane and a small spot on the lower lip would occasionally be swollen for a few hours When 17 she felt ill one afternoon The following morning her lips and cheeks were swollen tense and red She had no fever The swelling never completely subsided and repeated attacks occurred at intervals of three or four months with rapidly deforming fibrosis In May 1918 a physician in Chicago excised strips of fibrous tissue from both lips Attacks occurred at intervals of one year after the operation but these were febrile and with less edema. In 1919, during the first attack following the operation, a hemolytic streptococcus was cultivated from the maxillary sinuses A vaccine made with this strain did not prevent attacks In 1925 and subsequently febrile attacks occurred at intervals of two three or four months A physician in New York advised irradiation The patient was not benefited

In 1927[5] hemolytic streptococci were isolated from the buccal mucous membranes and from the deep layers of the skin Vaccines with this strain and later with three strains recovered from patients with erysipelas seemed to lengthen the intervals and reduce the severity of the reinfections, but these favorable results were only temporary The attacks were even severer after administration of vaccine was stopped After this trial with vaccines the patient was inoculated with filtrates of cultures of hemolytic Streptococcus grown from four to eight days The recurrences became milder and less frequent and ceased after a series of inoculations lasting two years (1932)

On two occasions since the last severe attack the lips and cheeks have been slightly swollen and inflamed Each time the patient was given a short course of inoculations with streptococcic filtrates The previously infected tissues are still mildly sensitive to streptococci, inoculations with large doses of filtrate will cause moderate swelling and inflammation of the face In the interval since 1933 she has had a sympathectomy for hypertension

COMMENT

In this otherwise typical history of a patient with Melkersson's syndrome, streptococcic infection was superimposed on the edema and fibrosis of the lips and cheeks This is unusual, no similar infection has been reported In retrospect it seems that some of the other patients treated for chronic infectional edema[5] may have had an edema and fibrosis such as that described by New and Kirch preceding their streptococcic and micrococcic infections Only 13 of the 67 patients they reported on had recurrent paralysis

Longcope[6] has reviewed the literature on angioneurotic edema and given his personal experience He considers hereditary edema, so frequently fatal, a separate entity The common or sporadic edemas occur largely in patients with a familial history of atopic allergic disease In reality they are only giant urticarial lesions, and patients with edema often have urticaria at some time Those patients in whom an allergenic excitant has not

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[5] Stevens F A Chronic Infectional Edema J A M A 100 1754 (June 3) 1933

[6] Longcope W T, and Winkenwerder W L, Nelson's Loose-Leaf Medicine New York, Thos Nelson & Sons vol 2, p 6[illegible]

been found have often had obscure foci of infection These giant urticarial lesions have been paler than the surrounding skin They have affected all parts of the body but especially easily distensible tissues such as the lips and the tissues surrounding the eyes Rarely in severe attacks a patient has had fever One region may be repeatedly involved with relapses and recurrences, but there has been no residual edema or fibrosis However, Longcope does mention certain patients reported on in the literature with edema of the face followed by permanent deformities

The edema associated with recurrent facial paralysis in Melkersson's syndrome is unlike angioneurotic edema in several respects First, it frequently leads to local fibrosis, which may develop rapidly or gradually after several mild recurrent attacks of edema, second, the edema occurs only around the eyes and mouth and on the cheeks, third, it may be familial, but it is not hereditary nor does it occur especially in patients with a family history of atopic allergies, and it has not been associated with urticaria, fourth, one in five patients has had recurrent seventh nerve paralysis, and fifth, while angioneurotic edematous tissues are pale, if the lesions of this edema are acute they may be red, tense, and glistening Possibly a distinctive term should be used to describe this lesion "idiopathic fibroedema" would appear suitable

Local infection with Streptococcus is the only unusual feature in the history of this patient The clinical picture changed when definite infection occurred So far no similar infection has been reported, although streptococcic and occasionally micrococcic infections of edematous tissues are not unusual if the edema is the result of some hereditary, congenital, or acquired abnormality of lymphatic drainage Repeated local infection of itself may also lead to fibroedema Authors who have previously described the edema occurring as a symptom in this syndrome did not believe there was local infection but, nevertheless, observed that the lesion should not be confused with erysipelas It is possible that subclinical local infection or adjacent infected foci are responsible for this fibroedema It should not be confused with the much commoner angioneurotic variety

CONCLUSIONS

Idiopathic fibroedema is an edema of the lips or circumorbital tissues with fibrosis of the affected areas Lingua plicata and, in one out of five patients, recurrent peripheral facial paralysis have been associated with it in a syndrome described by Melkersson Fibroedema must not be confused with sporadic angioneurotic edema, which never causes fibrosis, is often associated with urticaria, and occurs largely among patients with an allergic (atopic) family history in whom some allergenic excitant or focus of infection may be responsible The course and nature of this fibroedema suggest local subclinical infection Recurrent attacks of erysipelas or overt chronic infection (chronic infectional edema) may be superimposed on the fibrosis

620 W 168 St (32)

STUDY OF TUBELESS METHOD FOR DETERMINING GASTRIC ACIDITY AND pH VALUES

SPECIAL CONSIDERATION OF THE SUBTOTALLY RESECTED STOMACH

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The inadequacy of the titrametric method for measuring gastric acidity with Topfer reagent as indicator for the study of gastric anacidity in the intact stomach has been emphasized previously [1] More recently [2] this inadequacy has been shown to be perhaps even greater if the method is used to evaluate the effect of subtotal gastrectomy on the secretion of the remaining gastric pouch In both of these studies we found the determination of hydrogen ion concentration of the gastric contents to be the most precise method for establishing the true status of gastric acidity when no titratable free acid is present It is vital for the ulcer patient who has had a subtotal gastric resection to develop an anacidity in the remaining gastric pouch if he is to be safeguarded against the development of new ulcers We believe that it is important to study gastric secretion in these patients very shortly after operation and at frequent intervals thereafter until a satisfactory gastric anacidity [2] is established and to treat such patients as potential ulcer patients until such an anacidity does develop

Since the results of our previous studies [2] indicated the need for repeated gastric analysis in most patients after subtotal gastric resection, an evaluation of the quininium cation exchange resin test proposed by Segal, Miller, and Morton [3] was undertaken especially to determine its applicability in such patients This tubeless technique would be more acceptable to the patient for repeated tests since it makes gastric intubation unnecessary and would simplify the problem for the examiner, because when intubation is used in these patients the tip of the Rehfuss tube must be placed with especially careful fluoroscopic control in the remaining gastric pouch and should be checked at the end of the fractional gastric analysis in order to be

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[3] Segal, H L , Miller, L L , and Morton J J Determination of Gastric Acidity Without Intubation by Use of Cation Exchange Indicator Compounds, Proc Soc Exper Biol & Med **74** 218 1950

certain that the tip of the tube had not slipped through the gastric stoma

In order to determine the suitability of the tubeless method for the above purpose, pH values of the gastric contents were determined during the course of the quininium resin test Quinine extraction from the urine was made from aliquots of all urine specimens both by the ether sulfuric acid technique described by Kelsey and Geiling [4] and employed in the Segal, Miller, and Morton procedure and the benzene-sulfuric acid method based on the studies of Brodie and others,[5] and used in the modification of this procedure by Flood and his associates [6] Since cations other than H^+ can replace the quinine in the resin to a small degree in the two hours of the test, small amounts of quinine can be liberated, absorbed, and excreted in the urine in patients with gastric anacidity A quantity of 12 mcg of quinine for the Segal-Miller and 25 mcg for the Flood technique may be excreted by the patient with anacidity Between 12 and 25 mcg with the former and 25 to 50 mcg with the latter is considered to be in the equivocal zone, and determinations above 25 mcg and 50 mcg respectively, have been shown to indicate the presence of free gastric acid

EXPERIMENTAL METHODS

The patient reported to the institute at 8 30 a m after a 12 hour fasting period At this time the patient emptied the urinary bladder completely, and this specimen of urine was discarded A Rehfuss tube was passed, and the tip of the tube was visualized fluoroscopically and placed in the most dependent portion of the intact stomach and just above the gastrojejunal stoma in the patient with subtotal gastric resection Any slack in the tube was withdrawn and the tube then fixed to the chin with adhesive With a Luer all-glass syringe, 0 5 cc of gastric juice was withdrawn to determine basal pH in some of the patients Hydrogen ion determinations were made with a Beckman pH meter with micro cup attachments so that only two-drop quantities of gastric contents were required The remainder of the gastric sample together with the contents of the micro cup after the pH was determined were recovered with the glass syringe and returned to the stomach through the Rehfuss tube, care being taken to follow this reinjection with the injection of 3 cc of air to assure return of the tube contents to the stomach

Caffeine sodiobenzoate, 250 mg stirred into one-half glass of water, was administered orally at 9 a m At 10 a m the patient emptied the urinary bladder, and this specimen was used for the control determination of urinary substances fluorescent in ultraviolet light Two grams of quininium cation exchange resin (Diagnex) suspended in one-fourth glass of water was administered orally An additional one-fourth glass of water was then given to assure ingestion of the whole dose of indicator [7] Two hours later, at 12 noon, the patient again emptied the urinary bladder and this specimen was used for determination of excreted quinine

Simultaneously, just before the quininium resin was administered, 30 minutes after the resin was given, and at 15-minute intervals during the remainder of the two hours of the test pH determinations on specimens of gastric contents, obtained and treated in the manner described above, were made In addition, during this process, the glass syringe and micro cup were rinsed thoroughly with distilled water after each gastric specimen was returned to the stomach, and all washings were pooled. To this pool were added the washings through and around the gastric tube after its removal from the stomach at the end of the two hour test period The complete washings were then acidified with 0 1*N* hydrochloric acid and the specimen treated exactly as the urine specimens in order to determine the amount of quininium exchange resin or liberated quinine that might have been removed in our procedure to obtain the pH readings We found that insignificant amounts of quinine, in the range of only a few micrograms, were lost to the stomach by the entire procedure, a loss that could have had no effect on the amount of quinine excreted in the urine From each sample of urine, quinine was extracted by the two methods [8] indicated above

RESULTS

Only a few tests were performed in patients with intact stomachs, since our results in essence duplicated those already reported for the quininium resin test by Segal [9] and by others [10] Table 1 gives representative results in four such patients who secreted hydrochloric acid at a rate that assured adequate amounts of free acid in the gastric contents for adequate periods as indicated by the range in pH of samples of these contents In each case the urinary excretion of quinine determined by the Segal-Miller or Flood technique clearly reflected this secretion

TABLE 1—*Gastric Acidity and pH in Patients with Intact Stomachs and Adequate Acid Secretion*

	Case 1	Case 2	Case 3	Case 4
pH 1 hr after caffeine	1 49	1 42	1 23	1 41
30 min after resin	1 62	2 12	1.5	2.25
45 min after resin	ng *	5.99	2.08	2.65
60 min after resin	4.55	6 45	1.31	1 75
75 min after resin	2.10	5.10	2.12	ng*
90 min after resin	1 59	3 65	1 78	1.49
105 min after resin	1.91	1.50	1 89	2 0
120 min after resin	2 41	1.54	3 40	
Segal Miller—control mcg	1 6	0.0	5 84	15 12
Segal Miller—2 hr mcg	266.8	145.8	310.5	163.2
Segal Miller—true value mcg	265.2	145 8	304 7	148 0
Flood—control mcg	0 0	0 0	0 0	10 0
Flood—2 hr mcg	295 0	155 4	371 8	140.6
Flood—true value mcg	295 0	155 4	371 8	130 6

* ngs = no gastric secretion

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[8] Segal and others Flood and others [6]

[9] Segal H L Determination of Gastric Acidity Without Intubation Clinical Evaluation of Quininium Exchange Indicator Compound M Clin North America 35 593 1951

[10] (*a*) Malach M and Banks B M Experience with a Tubeless Method of Gastric Analysis New England J Med 247 [illegible] 1952 (*b*) Conway H and Meikle R W Detection of Achlorhydria Without Intubation Brit M J 2 1019 1953 (*c*) Bralow S P [illegible] W and Lieberson M Technique and Experiences with Tubeless Gastric Analysis J Albert Einstein M Center 1 61 1953 (*d*) Pollard H M Carballo A and Bolt R J Determination of Gastric Secretory Function by Measurement of Substances Excreted by the Kidneys II An Evaluation of the Tubeless Method of Gastric Analysis J Lab & Clin Med 43 340 1954

In this group, as well as in the patients listed in tables 2 and 3, the reading of the hour control specimen of urine was invariably higher with the Segal-Miller extraction method than with that obtained with the Flood extraction reagent The two hour urine excretion of quinine, after the resin was administered, almost invariably yielded a higher reading with the Flood method than with the Segal-Miller technique In the two patients (cases 4 and 11) in whom the output of quinine was higher with the Segal-Miller method, the differences from those obtained by the Flood method were not significant There were, however, cases among the patients with subtotal gastric resection in whom the higher values for quinine excretion obtained with the Flood method properly reflected the presence of free hydrochloric acid in the stomach as measured by the pH values (case 24) Such findings would indicate that there was a more complete extraction by the benzene reagent and not that it was merely a difference of frame of reference for the ether and benzene extractions that was involved

TABLE 2 —*Gastric Acidity and pH in Patients with Intact Stomachs and Anacidity*

	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10	Case 11
Basal pH				7 52	7 43	7 72	7 08
pH 1 hr after caffeine	ngs	7 12	ngs	7 56	7 69	7 28	7.32
30 min after resin	6 61	6 62	5 71	6 92	7 33	6 32	6 71
45 min after resin	ngs	6 98	6 80	6 58	6 70	6 93	6 75
60 min after resin	ngs	7 00	6 63	6 21	6 91	6 50	6 68
75 min after resin	ngs	7 00	6 82	6 20	6 31	7 34	6 56
90 min after resin	6 31	7 06	6 79	6 39	6 38	7 07	6 51
105 min after resin	ngs	7 28	6 62	6 41	6 85	7 11	6 61
120 min after resin	6 51	7 15	6 78	6 39	6 81	7 01	6 81
Segal Miller—Control mcg	0 0	6 5	0 0	3 80	0 0	3 36	0 0
Segal Miller—2 hr mcg	0 0	5 18	0 0	4 64	0 0	3 92	9 2
Segal Miller—true value mcg	0 0	0 0	0 0	0.84	0 0	0 56	9 2
Flood—control mcg	0 0	1 30	0 0	0 0	0 0	0 0	0 0
Flood—2 hr mcg	0 0	4 44	0 0	0 0	0 0	7 84	4 6
Flood—true value mcg	0 0	3 14	0 0	0 0	0 0	7 84	4 6

* ngs = no gastric secretion

Table 2 lists the results in seven patients with intact stomach and gastric anacidity In each instance in this group, the pH of the gastric contents remained well above pH 3 5 throughout the test period, and in each case the excretion of quinine in the urine after administration of the test dose of resin remained within the limits set for each of the methods for gastric anacidity Table 3 shows the results of 15 studies in 13 patients after subtotal gastrectomy In the patients in cases 12 and 21, two studies are recorded These were obtained at 2 weeks and 3 months after operation in the former and at 19 and 20 months after operation in the latter In these, as in the patient with an intact stomach, when the pH of the gastric contents remains above 3 5, the urinary output of quinine during the test falls within the range of anacid values for both methods (cases 12*B*, 13, 14, 16 and 17)

The low urinary excretion of quinine in each of the patients in cases 15 and 18 indicates the presence of gastric anacidity The results of the quininium resin test in these would not, however, adequately reflect the secretion of acid by the gastric mucosa, since the change in pH in the patient in case 15 from 6 85 one hour after caffeine administration and just before the resin was given to a value of 3 74, 45 minutes after ingestion of the resin, indicates that not only is acid being secreted by the parietal cells but that the pH of the gastric contents for at least part of the test period was such as to permit peptic activity, even though no titratable free hydrochloric acid was present throughout the test period This is true also, but to a lesser degree, in the patient in case 18 In such cases the tubeless method for indicating the presence of free acid in the stomach would not be suitable for studying the physiological adequacy of the subtotal gastric resection The need to measure such adequacy after subtotal gastric resection has recently been stressed[2] The adequacy can be assumed to be established for the patient only when the gastric contents during the entire course of a satisfactory fractional gastric analysis remains at pH 5 (proteolytic neutralization point of Hollander[11]) or higher Only then can we be reasonably certain that the subtotal gastric resection has been followed by a "degree of anacidity" that will protect the patient against the development of new ulcer disease

TABLE 3 —*Gastric Acidity and pH Measured in Patients with Subtotal Resection*

	Case 12		Case 13	Case 14	Case 15	Case 16	Case 17	Case 18	Case 19	Case 20	Case 21		Case 22	Case 23	Case 24
	A	B									A	B			
Basal pH		7 31	7 08	8 01			7.58		6 81		6 47	6 42			
pH 1 hr after caffeine	1 81	6 99	7 15	7 43	6 85	7.39	7 28	6 19	6 71	2 91	3 93	3 16	1 91	3 65	4.32
30 min after resin	1.89	6 90	6 95	6 92	6 27	7 41	7 58	5.29	6 70	4 92	3 79	ngs	2 30	2 32	3.19
45 min after resin	2 17	6 19	7 30	6 68	3 74	7 21	7 39	5 12	6 50	6 80	2 79	2.52	2.50	4 61	3 11
60 min after resin	1 88	6 82	7 22	6 78	5.89	ngs	6 08	4 21	6.52	2 70	2 51	6 89	2.82	2 51	3.92
75 min after resin	2 19	6 91	ngs*	6 52	5 81	ngs	6 12	5 90	5 78	2 10	ngs	4 19	3 09	2.39	5 41
90 min after resin	2 05	6 98	7 25	6 71	6 00	ngs	6 17	5 35	4 80	1 78	3 71	ngs	1 98	2.22	5.89
105 min after resin	1.61	6 60	ngs	6 95	5 16	ngs	6 61	5 22	5 71	2 12	4 68	3 72	2 70	2 15	5 61
120 min after resin	1 74	6 70	7 11	6 76	5 00	ngs	4 81	4.59	5 61	2 52	2 78	2 31	6 48	2.89	4.62
Segal Miller—control mcg	0 0	1 80	16 0	4 56	0 0	6 0	6 24	0 0	6 0	4 8	0 0		0 0	0 0	11.3
Segal Miller—2 hr mcg	60 4	11.20	0 0	5 47	5 0	12 3	17.25	3 84	11 06	12 6	26 18	9 60	39 0	142 8	12.24
Segal Miller—true value mcg	60 4	9 4	0 0	0.89	5 0	6 3	11 01	3 84	5 06	7 8	26 18	6 0	39 0	142.8	1.04
Flood—control mcg	0 0	0 0	0 0	3 04	0 0	2 0	0 0	0 0	1 5	2 4	0 0	1 20	0 0	0 0	2.8
Flood—2 hr, mcg	149 6	14 0	11 25	7 8	5 0	14 35	17 25	2 8	28 44	49.2	98.56	25.2	67 2	184 8	59 16
Flood—true value, mcg	149 6	14 0	11 25	4 76	5 0	12 35	17 25	2 8	26 90	46 8	98 56	24 0	57 2	184 8	56 86

* ngs = no gastric secretion

In the patient in case 19, the Segal-Miller method yielded an excretion of quinine at the anacid level (5 06 mcg) while the Flood technique gave results in the equivocal zone (26 9 mcg) However, in the patients in cases 20 and 21*B*, the results of both methods for quinine excretion gave false anacidity levels, since the pH values of the gastric contents indicated unquestionably that free hydrochloric acid was present for considerable portions of the test period.

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[11] Hollander, F J What Constitutes Effective Neutralization of Gastric Contents? Am J Digest Dis 6 127, 1939

The presence of titratable free hydrochloric acid in the gastric contents almost throughout the entire test period in the patients in cases 12*A* and 23 as indicated by the pH values obtained, is also shown in the values for quinine excretion obtained by both methods. In the patient in case 24, in whom pH values of the gastric contents reached the low points of 3.11 and 3.19, indicating the presence of some titratable free acid for at least part of the test period, the quinine excretion determined by the Segal-Miller method (1.04 mcg.) yielded a false anacidity value, while the result of the Flood technique (56.36 mcg.) properly reflected the secretion of acid. In the patient in case 21*A* the Flood technique disclosed the presence of free hydrochloric acid, Segal-Miller extraction gave a reading just above the equivocal zone.

It would appear from our study of the quininium resin test in the patient with a subtotal gastrectomy in relation to the pH values in the residual gastric pouch obtained during the period of the test that, in addition to the pH of the gastric contents, there is a time factor of exposure as well that is important in effecting a release of adequate amount of quinine from the resin. This is suggested by the results in several of the patients. Thus, in the patient in case 22, both methods of extraction yielded results indicating the presence of free acid in the stomach. However, the urinary excretion of quinine measured by each method is much lower than that which would be expected from the pH values obtained. (Compare case 12 with those in table 1.) A similar conclusion may be drawn from the results in the patient in case 24. Rapid emptying of the administered resin from the gastric pouch is believed to be responsible for cutting down the time of exposure of the resin to the hydrochloric acid secreted in such a pouch, and this leads to the false anacidity results that we have encountered. Conway and Meikle[10b] in 1953 reported one patient with a false anacidity result after subtotal gastrectomy.

The data in table 3 especially emphasize the superiority of the benzene over the ether extraction of the quinine from the urine, and the differences in the results obtained on the control specimens of urine by the two methods also indicate the greater specificity of the benzene for the extraction. The results of our studies of the quininium cation exchange resin test in the patient after subtotal gastric resection indicate that this test is not suitable for use in such patients. These results would make us differ somewhat with the conclusion recently reached by Pollard, Carballo, and Bolt.[10d] These investigators found this test "of extreme value in patients with partial gastrectomies because of the unreliability of the gastric tube method in these cases." Such an unreliability, we believe, would apply only if in doing a fractional gastric analysis in a patient who has had a subtotal gastrectomy one attempts to obtain at each extraction the amount of gastric contents usually required for titration of acid. It would not occur if only extractions sufficient for pH determination with the micro technique are sought.

Certain other features connected with the quininium resin test deserve comment. Segal[illegible] as well as Malach and Banks[10a] report an occasional patient in whom the tubeless method indicated the presence of free gastric hydrochloric acid, but when the results were checked with the tube method, no free acid was found. An error in this direction does not necessarily have to rest on the quininium resin test, for other contributory factors could be present. Thus if in patients in whom such an error occurred, a low rate of gastric secretion were present and if intubation was being done for the first time, especially in an emotionally labile person, depression of secretion could occur to yield an anacidity on that day. Such apparent errors could have been avoided if pH determinations and urinary excretion of quinine were made during the same test. Furthermore, barring such an event, if free gastric acidity is low, even well-trained technicians can misread the end point for Topfer's reagent when the gastric juice has a pH even down to 3.0 or less.

However, the indication of the presence of anacidity by the quininium resin test and the finding of titratable free hydrochloric acid by the tube method presents a more serious error, since it implies that factors other than the pH of the gastric contents can play an important part in the result obtained with the resin test. We have indicated, from our data in patients who have had subtotal gastric resection, that the rate of gastric emptying may be one such factor. It is possible that rapid gastric emptying of the intact stomach may also produce a similar result. Malach and Banks[10a] report two patients with duodenal ulcer in whom the resin test indicated an anacidity but the tube method showed free hydrochloric acid. Since in uncomplicated duodenal ulcer rapid gastric emptying may occur, it is quite possible that this same mechanism was responsible for the erroneous result of the resin test in these two patients. One wonders, too, whether altered intestinal absorption of quinine or its excretion by the kidney ever plays a part in producing such errors. In any case, the fact that false anacidity values can be obtained with the resin test implies that the pH of the gastric contents is not the sole determining factor in the urinary excretion of quinine during this test.

SUMMARY AND CONCLUSIONS

The results of our studies in patients after subtotal gastric resection indicate that the tubeless method for determining the presence of free gastric hydrochloric acid in the remaining gastric pouch is not suitable for these patients. The reason for this probably rests in the too rapid emptying of the quininium resin that may occur from the remaining gastric pouch. Since a certain time of exposure to a proper pH appears to be necessary for an adequate exchange of the quinine by the H^+ ions to occur, the rapid emptying can result in the method yielding false anacidity values. With the Segal-Miller test the "degree of anacidity" cannot be established, and an exact definition is essential in studying the gastric acid secretory response after subtotal gastric resection for gastric or duodenal ulcer. The benzene-sulfuric acid extraction of the quinine excreted in the urine is superior to the ether-sulfuric acid method. From the results obtained in the control specimens of urine the benzene-sulfuric method is probably also more specific. We feel the determination of pH of the gastric contents during an adequate fractional gastric analysis is the best method for studying gastric acidity after subtotal gastric resection.

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AN EXPERIENCE IN THE FORMATION OF A COMMITTEE ON ACCIDENT PREVENTION IN CHILDREN

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Accidents of all types are now the leading cause of mortality and one of the leading causes of morbidity in children under 10 years of age [1] In fact, accidents are responsible for one-third of all the deaths occurring in children in this age group The American Academy of Pediatrics has taken cognizance of these grim facts by instituting a committee for the prevention of accidents The current chairman of this committee is Dr George Wheatley, a pediatrician who is a vice-president of the Metropolitan Life Insurance Company The facts presented at a seminar held in October, 1952, at an academy meeting [2] inspired one of us (W W H) to introduce a similar program into our community [3] Although we did not expect the movement to spring into complete being as Pallas Athene sprang full panoplied from the brain of Zeus, we were hardly prepared for the obstructions the program encountered We launched our efforts in this program with the feeling that accidents are akin to sin and that everyone would be "agin" them The opposition that our efforts received and the quarters from which this opposition emerged offered us at least a modicum of surprise

Our *modus operandi* was as follows We first gathered into a small group pediatricians representing all geographical sections of our county, and representatives from local health departments, the United States Public Health Service, and the major groups of nurses engaged in public health work A public-spirited attorney acted as secretary of the group After this nucleus had met several times, their thinking had been crystallized and their ideas channeled into definite plans for a coordinated and effective community-wide program As a result of these conferences a public meeting was called at a large community health center for the purpose of launching the program in the community Leaders of official and volunteer agencies were invited, including the health commissioners of the major political subdivisions, the coroner of the county, representatives from the board of education, the safety council, the public health nursing groups, the university department of pediatrics, and the parent-teacher organizations, members of the press, radio, and television, and numbers of public-spirited citizens At this meeting we presented our ideas, including a brief historical review of the movement, the scope of the problem in our own county, a plan of approach to the difficulties, and our own enthusiasm for the amelioration of an increasingly important health situation

PRELIMINARY STEPS

We stated that our first objective was to collect statistics to determine the number of accidents occurring per year that involved children, the kinds of accidents, and, if possible, the effect of age, sex, season, and living conditions on the various types of accidents Then, with this introduction, we sat back to wait for the anticipated approval and offers of cooperation The first comments were mildly critical, but soon a rising crescendo of opposition engulfed us One of the health officers stated that there was no need to collect any further statistics since he already had all the data that were necessary The only statistics he had, however, were those collected by the police, and they recorded only accidents that were fatal, those that involved motor vehicles, those that happened on public property, and those that might involve some criminal implication Except for these limited figures no one knew anything about the number or type of accidents that involved the children of our community

Representatives of the safety council stated and recognized that their home safety program was not particularly oriented to the prevention of accidents in children and that almost nothing had been done in working for accident prevention in the preschool child Another health official stated that the idea of accident prevention was old and would be hard to "sell" to the public We will show later in this paper that this idea, far from being "old," is new, vital, and dynamic When carried on to its full fruition it not only will decrease accidents but will improve almost every facet of child-parent relationship—the very essence of pediatrics and in every sense the foundation structure of our civilization

The group concluded that the program was worthy, that it had merit, and that it could best function under the aegis of an organization such as the Safety Council of Greater Cleveland We also approached the Academy of Medicine with the idea of working as a committee of the academy The academy wished to incorporate our group into their health education committee, but we felt that this might submerge our identity and threaten our autonomy After numerous conferences a compromise was reached by which we were made a special committee of the academy and also a section of the safety council Thus we became a part of both organizations and received recognition and aid from both

We were now ready to begin our real work, our first efforts were to define the problem and outline the scope of the accident hazard by collecting statistics We approached 18 hospitals in Greater Cleveland, and 11 cooperated by keeping records in their emergency rooms of the number of accidents involving children under 14 years of age The statistics obtained in one short year presented many interesting possibilities in that their final analysis may point to definite patterns in the accident picture as regards sex, age, economic level, and season It is our purpose here to mention only gross figures The total estimated number of accidents involving children was 35,000 per year The Greater Cleveland Hospital Council collected similar figures on the total accident picture, involving children and adults The total numbers might be termed astronomical, only those accidents severe enough to require hospital admission of the victim required the equivalent of a 400-bed hospital occupied to capacity every day of the year If one were able to ignore the human anguish involved, just the economic difficulties of these accidents point to this as a community problem of the first magnitude

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[1] Aikman, J , and others Round table discussion Pediatric Emergencies Pediatrics **2** 209 221 (Aug) 1948 Press E The Accident Problem, J A M A **135** 824-827 (Nov 29) 1947

[2] Wheatley, G M Child Accident Reduction A Challenge to the Pediatrician, Pediatrics **2** 367 368 (Sept) 1948 Shaw E B Accidents, Childhood s Greatest Health Hazard read before the joint meeting of the American Academy of Pediatrics and the National Safety Council, Oct 17, 1950

[3] Hunt, H C The Challenge of Child Accident Prevention, read before the joint meeting of the American Academy of Pediatrics and the National Safety Council, Oct 17, 1950

Our statistical survey showed that 60% of all accidents occurred in the home, that 67% of all accidents were due to falls producing fractures, lacerations, and bruises, 4% to the ingestion of poison, 5% to ingestion of foreign bodies, 5% to dog bites, 5 5% to auto accidents, and 3 5% to bicycles and skates, that 65% occurred in males and 35% in females, that 93% of accidents in children less than 1 year old occurred in the home, 76% in children 1 year to 5 years old, and 41% in children 6 to 14 years old, and that 44% of all accidents occurred during May, June, July, and August We used these figures to spur local pride in the spirit of competition to reduce accidents and to institute community-wide measures for accident prevention

EDUCATION AND PUBLICITY

The second point in our program to help prevent accidents in children involved the use of the resources of the public health nursing program Public health nurses make an average of 150,000 home visits per year They instituted as part of their routine health suggestions some practical ideas on accident prevention A discussion on accident prevention was also made part of the prenatal classes Mothers-to-be were urged not to leave their infants unattended on bathing tables, to be sure that all safety pins were closed and out of reach, and to avoid using sharp-cornered or hard metal objects such as talcum powder boxes as toys They were given many other instructions that would help to prevent the commonest accidents that involve infants

The third point in our program was the establishment of a speakers' bureau A group of interested and qualified persons, including physicians, nurses, and public health educators, made themselves available for talks on safety to many groups principally the various parent-teachers associations

As a fourth point we attempted by every means at our disposal to promote public safety in the press and on the radio and television We made an effort to suggest and influence legislation on matters concerned with child safety We called municipal legislators and initiated and lobbied for ordinances such as those requiring the compulsory removal of unused iceboxes

It is worth while to summarize the projects of a public nature that were initiated by this small group This list is evidence that a group with interest and determination can accomplish much in effective public education The committee had no full-time or paid personnel Everything was accomplished after the discharge of the regular duties of the members, and each committee worker had extensive private responsibilities

Programs and Exhibits—Dr George Wheatley was the main speaker at one of our local hospitals in a program devoted to child safety While in the city Dr Wheatley gave recorded interviews on television and on radio news programs He received good press coverage, with special articles by the feature writers who routinely write columns on child care The Health Museum of Cleveland, the outstanding health education project of its type in the world, presented a fine exhibit borrowed from Duke University and held an institute and seminar on this subject The Safety Council of Ohio had a three day meeting in the community, and the pediatricians presented a program for one morning that covered every phase of the child safety program Three to four lectures a month were given by physicians to groups of parents The radio station operated by the Cleveland Board of Education inaugurated a program dealing with child safety at school and in the home, it is heard several times during the semester by children from 6 to 10 years of age

Printed Material—The newspapers have given continuous publicity in the interest of accident prevention Various types of poisoning—particularly aspirin, lead and phenobarbital intoxication—were given widespread coverage This was quite effective, judging by the number of calls received by private physicians from their patients after these articles appeared Pharmaceutical companies and drug trade associations agreed to budget part of their advertising funds to publicity promoting the cause of child safety A public utility company eagerly agreed to include a short article on safety in a booklet that it mails to its customers every month The mail from this company goes to one and a half million addresses each month along with its statements This is one of those rare arrangements whereby everyone benefits with no additional cost to anyone

Talks with Private Patients—Perhaps our most important effort was to attempt to inculcate on our private patients in our own offices a good pediatric approach to accident control in the manner outlined by Dr Harry Dietrich of the University of Southern California We accepted and taught the idea that accident prevention in children, like good manners, is a form of behavior, and as such can become so ingrained that it is a part of the child's nature He then conducts himself all through his life with a minimum of risk, effortlessly and naturally [4]

BENEFITS

We demonstrated to our patients that a good approach to accident control in childhood returns benefits not only in a reduced accident rate but in improvement of many facets of child-parent relationship When a child learns that his parents' love and affection will not permit him to do any truly injurious act, he becomes more convinced of that love than by any other parental act. The knowledge he acquires from their educational efforts augments his self-confidence so that, if the whole idea is intelligently and quietly applied, his sense of security becomes deeply rooted [4a]

The most difficult part of the program is to evaluate in any exact manner the benefits resulting from the whole program It is probably impossible to say that the accident rate is truly reduced, principally because one is always dealing with a new generation of parents The effort must be continuous and enduring and always aimed at a new group Perhaps we can best express our own feelings by quoting President Woodrow Wilson When someone in his presence deprecated religion as a moral force amongst men because of the many amoral influences readily observed in the actions of human beings, he countered by saying, "But think how bad things might be without the moral restraint of any religion at all"

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[4] (a) Dietrich, H F Accident Prevention Through Pediatric Practice read before the joint meeting of the American Academy of Pediatrics and the National Safety Council Oct 17 1950 (b) Dietrich, H F Accidents Childhood s Greatest Physical Threat Are Preventable J A M A **144** 1175 1179 (Dec 2) 1950 (c) McIntosh R The Pediatric Approach to Accident Control Through Research read before the joint meeting of the American Academy of Pediatrics an dthe National Safety Council, Oct 17, 1950

THE OPTIMAL DOSE OF MORPHINE

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The optimal dose of a drug may be defined as that dose that provides the desired therapeutic effects with a minimum of undesirable side-effects The ease and safety with which a drug is administered is frequently related to the precision with which one can define an optimal dose for a majority of patients requiring the drug In regard to morphine specifically, there are important reasons why its optimal dose should be carefully defined First, it is usually employed in the treatment of acute pain when there is a premium on rapid and effective relief and little opportunity for leisurely trial and error individualization Second, morphine can produce unpleasant and even dangerous side-effects, so that the flexibility in dosage is not as great as is permissible with a drug like penicillin, for example Third, in regard to the risk of addiction, the view has been expressed that the use of minimal effective doses of morphine reduces the incidence of euphoria,[1] and evidence has been presented that the development of physical dependence is directly related to the size of the dose administered [2] Fourth, it is customary for investigators to compare old and new analgesics with morphine as a standard of reference, the optimal dose of the latter drug is particularly appropriate as such a standard

In a study in man of the pain-relieving power of morphine, Denton and Beecher [3] reported that the dose-effectiveness curve broke sharply at 7 to 9 mg (of sulfate) per 70 kg of body weight, and that double this amount provided no further significant increase in analgesia Since this original report, the clinical evaluation of analgesic agents in this laboratory has continued, with improvements in patient selection and evaluation of pain relief Attention during the past five years has been concentrated primarily on steady wound pain, rather than on all types of postoperative discomfort, and on major surgery involving body cavities and extremities, rather than on the greater variety of operative procedures first utilized In a paper published four years ago, Keats, Beecher, and Mosteller [4] found that 15 mg of morphine provided 83 3% pain relief as compared with 73 8% relief following administration of 10 mg of morphine The practical importance of the dose-effect problem is such that it seemed to be worth restudying with our more sharply defined technique The average pain relief from 10 mg of morphine is at present 65% This decrease from the 90% relief reported in the earlier paper [3] is due presumably to a severer average pain in the patients now chosen for study The 65% average success rate of 10 mg of morphine appeared to afford greater opportunity for demonstrating any increased effectiveness of the 15 mg dose than did the original 90% rate The present report is concerned not only with the analgesic effectiveness of these two frequently employed clinical doses but also with their side-action liability, an essential consideration in determining the dosage of any drug

METHODS AND RESULTS

Incidence of Pain Relief—Patients from the general surgical, orthopedic, urologic, and gynecologic wards were studied postoperatively in regard to pain relief from 10 and 15 mg doses of the phosphate salt or morphine per 70 kg of body weight For brevity, "morphine" will be used throughout the paper instead of morphine phosphate The weights always refer to the salt All doses were given subcutaneously These doses were alternated in each patient, and the order of administration was alternated from patient to patient The drugs were given by code, and evaluation of pain relief was made by technicians unaware of the nature of the medication, according to the principles described in earlier papers [5] Only "paired data" were employed for comparison of pain-

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[1] Lee L E Jr Symposium Can the Euphoric, Analgetic and Physical Dependence Effects of Drugs Be Separated? II With Relation to Analgesia and Clinical Erperience Fed Proc **2** 191 (Sept) 1943

[2] Andrews, H L , and Himmelsbach C K Relation of Intensity of Morphine Abstinence Syndrome to Dosage J Pharmacol & Exper Therap **81**:288 (July) 1944

[3] Denton, J E and Beecher H K New Analgesics II A Clinical Appraisal of the Narcotic Power of Methadone and Its Isomers III A Comparison of the Side Effects of Morphine Methadone and Methadone s Isomers in Man, J A M A **141** 1146 (Dec 17) 1949

[4] Keats, A S , Beecher, H K and Mosteller F C Measurement of Pathological Pain in Distinction to Experimental Pain J Appl Physiol **3** 35 (July) 1950

[5] Denton, J E , and Beecher, H K New Analgesics I Methods in the Clinical Evaluation of New Analgesics, J A M A **141**:1051 (Dec 10) 1949 Keats and others [4]

relieving power, i e , doses of 10 and 15 mg administered to the same patient as successive medication for the same type of pain If a patient received more than one pair of doses, he was given an "average" pain relief score for each drug (For example, if patient A received only one dose each of drugs X and Y, and both doses were effective, each drug was recorded as having provided 100% relief If patient B received two doses each of drugs X and Y, and only one of the X doses but both Y doses were effective, the drugs were given 50% and 100% scores, respectively) Two groups of patients were studied, about one year apart In the first group, 66 patients, the average per cent relief of pain of those receiving 10 mg and 15 mg doses of morphine was 65 8 and 76 8, respectively The average per cent relief of pain in the second group, 56 patients, receiving the same doses, was 69 3 and 78 7, respectively In the statistical evaluation of these correlated data, the difference in analgesic effectiveness between the two dose levels for each group of patients is not significant at the 5% level, but pooling the data from both groups yields significance

A further analysis of pain relief was possible in the case of 171 doses of 10 mg and 175 doses of 15 mg of morphine The average figures refer to the incidence of significant pain relief This criterion is arbitrarily defined as 50% or more relief of pain at 45 and 90 minutes after medication This standard might theoretically mask, in part, a superior performance by a drug that more frequently provided complete relief or less frequently failed to provide any relief The 346 doses referred to gave information on this point since records were kept as to whether pain relief was complete, moderate (50% or more but less than complete), slight (less than 50% but more than 0), or completely lacking These data, obtained in 105 patients, are presented in table 1 (the checks refer to the evaluations made at the 45 and 90 minute intervals) Here the trend is again in favor of the larger dose, with 15 mg doses producing complete relief at one or both checks (categories VI and VII) slightly more frequently than do 10 mg doses There is no particular suggestion that the 15 mg dose fails to provide any relief any less frequently than does the 10 mg dose

Duration of Pain Relief —A second important consideration in the measurement of analgesia is the duration of pain relief after a dose of an analgesic agent This was evaluated by calculating the time that elapsed between administration of one dose of morphine and the next dose No dose was considered that was not followed by a return of pain great enough to require a narcotic The return of pain is probably modified by the hypnotic as well as the analgesic effect of morphine In addition, the return of pain is only one factor determining the dosage interval, others include the relative thresholds of various patients for requesting medication, the opinion of the nurse on duty as to when a patient needs medication (the orders were written so that patients could receive medication every two hours if necessary), and the delays involved when a busy nursing staff has a large number of patients requiring attention at the same time With large enough groups and with each patient serving as his own control, however, it seems reasonable to suppose that many of these other factors will cancel out and that the return of pain will be a primary determinant

An average duration for 10 mg and for 15 mg of morphine was derived for each patient who received at least one dose of each Thus all 15 mg doses received by a patient for steady wound pain provided one mean and all similar 10 mg doses provided a second mean The difference between these means was determined for each patient The differences for all the patients in each of the two groups studied were then subjected to a rank test for paired replicates [6] With 10 and 15 mg doses of morphine, the mean duration of analgesia experienced by a group of 48 patients was 422 ± 47 minutes and 523 ± 46 minutes respectively In a group of 51 patients receiving the same doses, the duration of analgesia was 441 ± 25 minutes and 468 ± 38 minutes respectively In the first group, the duration of pain relief was significantly greater (at the 2% level) after the 15 mg doses than after the 10 mg doses The second group did not show a significant difference between the two doses, even when analyzed by a conventional "t" test for correlated data

Toxic Effects —Ten healthy male volunteers between 21 and 35 years of age were studied for the incidence of side-reactions, including respiratory depression, after administration of 10 mg. and 15 mg of morphine These two doses and a placebo, identified by code letter only, were administered subcutaneously to each subject in random order At least three days elapsed between each experiment. Each subject reported early in the morning, having omitted breakfast. After a rest period of 30 minutes, he breathed through a mouthpiece (the nose was occluded with a clip) for three to five minutes to become accustomed to the apparatus The average respiratory rate and minute volume over a three minute period were then measured, the latter by passing the inspired air through a dry-test flow meter (Such measurements were shown to check well against those obtained with a Benedict-Roth apparatus) Measurements were first made while the subject breathed room air He then inspired 5% carbon dioxide for nine minutes Measurements of respiratory rate and minute volume (similar to those for room air) were obtained during the last three minutes After these control readings, the medicament was injected, and similar measurements were made at 30, 60, 120, 180, 240, and 300 minutes after injection of medication The subjects were required to walk for two minutes after each period of measurement and were then given questionnaires to fill out These questionnaires were designed to elicit the major subjective side-effects produced by morphine, as determined by previous

TABLE 1 —*Pain Relief Patterns After Morphine Administration*

Dose of Morphine Mg	Total No of Doses	No of Doses Producing Various Responses *						
		I	II	III	IV	V	VI	VII
10	171	7	3	25	15	70	18	33
15	175	6	2	15	13	68	27	44

* I No relief at either check
II No relief at one check slight relief at one check
III Slight relief at both checks
IV Slight relief at one check moderate relief at one check
V Moderate relief at both checks
VI Moderate relief at one check complete relief at one check
VII Complete relief at both checks

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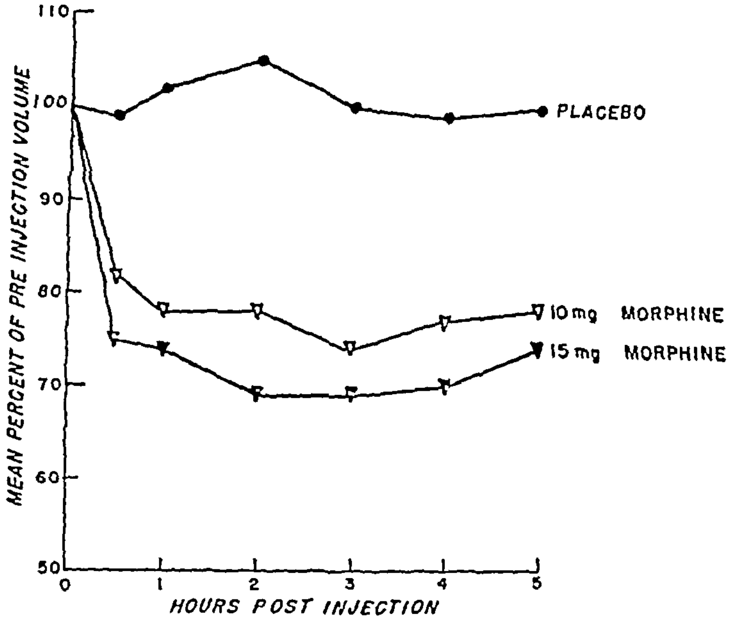
[6] Wilcoxon F Some Rapid Approximate Statistical Procedures New York American Cyanamid Co, 1949

studies in this and other laboratories Except for short periods of walking subjects sat quietly in easy chairs for the entire period of observation They were allowed to read but were not permitted to smoke or sleep The respiratory rate showed no significant change after administration of the drugs The result on respiratory minute volume for room air and carbon dioxide were, in general, parallel The magnitude of change and the consistency of results, however were greater in the carbon dioxide data The latter will therefore be described and discussed



Respiratory depression caused by two doses of morphine and a placebo

The average depression caused by the two doses of morphine and the placebo is shown in the figure The ordinate shows minute volume of respiration in terms of the percentage of preinjection volume, arbitrarily called 100% Total respiratory depression for the five hours of observation, measured by the area between the curve for a particular experiment and the 100% line, was analyzed A chi square test (rapid method of Friedman [7]) was run on all the data to determine whether a significant difference existed between the three treatments (placebo, 10 mg of morphine, and 15 mg of morphine) This yielded significance, so the rank method for paired replicates used above in the analysis of duration of analgesia was used to compare pairs of treatments There was a significant difference in effect on respiratory minute volume between placebo and either dose of morphine Although the average values for all points on the 15 mg curve are lower than on those for 10 mg, the difference between the two doses is not statistically significant

The incidence of toxicity in the 10 subjects was higher for most symptoms in the case of the 15 mg dose (table 2) By the rank test described above, a comparison of the two doses showed a significant difference, at the 5% level, in incidence of side-effects per person

The findings described suggest that when one is dealing with patients in severe pain after operation, the use of 15 mg of morphine will provide a slightly higher average success rate than will 10 mg, and the average duration of analgesia will tend to be somewhat longer with the larger dose On the other hand, the use of the larger dose is associated (at least in our healthy subjects) with a higher incidence of undesirable side-effects

COMPARISON WITH OTHER STUDIES

With these results in mind, it seemed appropriate to survey the literature for other evidence bearing on the problem of the optimal dose of morphine The excellent agreement of the analgesic data in two groups of patients studied almost a year apart, and the previous finding of Keats, Beecher, and Mosteller [4] that 15 mg of morphine provided about a 10% increase in analgesic effectiveness over that of 10 mg of morphine are reassuring as to the reproducibility of the results in our own laboratory Nevertheless, the experience of one group of investigators studying certain types of patients with one particular analgesimetric technique is useful in didect proportion to the transferability of their data to other situations and other techniques

Cullen and Gross [8] have reported on the treatment of postoperative pain in 338 patients subjected to a great variety of surgical procedures Of this group, 251 received 10 mg doses of morphine, and 87 received 5 mg doses Nienty per cent of the patients received satisfactory relief, a figure remarkably similar to the 93 to 94% originally reported by Denton and Beecher [3] in a similar set of patients Gaensler [9] found that 10 mg of morphine, given subcutaneously, was the most effective of seven analgesic drugs in increasing the pain threshold to experimental distention of the common bile duct in patients convalescing from biliary surgery Lee,[10] studying 776 patients on the medical, surgical, and emergency wards of a large general hospital, described 10 mg of morphine as the usual minimal clinical analgesic dose Similar findings were described by Lee for patients with terminal cancer in the absence of previous narcotic experience

TABLE 2—*Side-Effects of Morphine in Ten Subjects*

Effect	10 Mg of Morphine	15 Mg of Morphine
Shakiness	4	4
Heavyheadedness	7	6
Lightheadedness	2	4
General malaise	4	8
Headache	8	3
Nausea	4	6
Difficulty in concentrating	7	9
Difficulty in focusing eyes	5	6
Itchiness	4	5
Apprehension	0	3
Apathy	3	7
Hiccups	2	4
Dry mouth	8	9
Palpitation	1	3
Dizziness	6	8
Dulling of senses	8	6

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[7] Friedman, M The Use of Ranks to Avoid the Assumption of Normality, J Am Statist A **32** 675 1937

[8] Cullen S C and Gross E G Analgesic Testing Methods, from *Minutes of Twelfth Meeting*, Nov 6 and 7 1953 Committee on Drug Addiction and Narcotics, Washington, D C National Research Council, 1953

[9] Gaensler, E A Quantitative Determination of Visceral Pain Threshold in Man Characteristics of Visceral Pain *Effect of Inflammation and Analgesics* on Threshold, and Relationship of Analgesia to *Visceral Spasm*, J Clin Invest **30** 406 (April) 1951

[10] Lee, L E, Jr Studies of Morphine, Codeine and Their Derivatives XVI Clinical Studies of Morphine, Methyldihydromorphinone (Metopon) and Dihydrodesoxymorphine D (Desomorphine), J Pharmacol & Exper Therap **75** 161 (June) 1942

Houde and Wallenstein[11] have measured the results obtained with 10 mg of morphine in patients suffering from the pain of malignant disease, using both the 50% or more pain relief technique used in our laboratory and their own method for evaluating analgesia, which relies on subjective estimates of severity of pain at intervals after medication, without reference (by the patient) to the premedication level of pain Their data reveal excellent agreement between the two criteria for assessing pain relief

Thus the results obtained by different investigators, in patients suffering from pain of various causes and evaluated by different criteria, suggest that a majority of the patients who receive morphine will be satisfactorily treated with 10 mg doses of this drug It must be emphasized that one will not obtain 90% success rates if one focuses on the patients with severe grades of pain Indeed, the results of the present report indicate that only two-thirds of the patients with severe pain will receive rapid and satisfactory relief from 10 mg of morphine All but a few patients will receive some relief from this dose, however, and increasing the dose to 15 mg of morphine will not solve the therapeutic problem for such patients (20% or more, in our hands, are not adequately relieved) A reasonable approach would therefore seem to be to try 10 mg doses (per 70 kg of body weight) in most patients, reserving larger doses for those situations in which 10 mg doses of morphine are found ineffective There is a need for reliable prognostic data on specific pain situations in which larger doses of morphine or possibly other narcotics might be indicated from the outset Cullen and Gross[8] have suggested from their data that types of postoperative pain may differ in their response to different narcotics, according to the region of the body involved In our laboratory, we have observed a tendency for the first 10 mg (postoperative) dose of morphine to be less effective than subsequent doses by as much as 35%, whereas the differential for 15 mg doses is about one-half this This decreased early effectiveness of morphine appears to be due to a greater severity of pain in the early postoperative period It might possibly be due to a need for priming doses and the establishment of certain blood levels, however, these patients have in most cases had a preanesthetic dose of morphine This might be considered a priming dose Obviously there is a need for information on the details of pain relief from narcotics in specific clinical situations, but the over-all picture is one of reliable performance in a majority of instances from 10 mg doses of morphine

An additional reason for using smaller doses of morphine is the fact that increased toxicity results from larger doses Our own small group of healthy subjects indicates a significant increase of unpleasant side-reactions in the specific test situation as one increases the dose from 10 mg to 15 mg Comroe and Dripps,[12] in a study of healthy volunteers, found side-effects to be more frequent in those subjects receiving 15 mg of morphine than in those receiving 8 mg, with a further increase in toxicity from doses of 20 mg In 20 healthy volunteers in our laboratory (unpublished data) the incidence of the following side-effects after 8 mg and 15 mg doses of morphine was compared headache, nausea, itchiness, warmth dry mouth, dizziness, ataxia, sleepiness, and shakiness The mean number of side-effects per person (plus or minus the standard error of the mean) was 6 8 ± 0 4 for the 15 mg group and 3 4 ± 0 9 for the 8 mg group, a significant difference In the paper of Denton and Beecher,[3] 57 similar subjects were studied. About one-half of the group received 10 mg. of morphine, the other half, 15 mg, both groups received a placebo No significant difference was observed between the placebo data in the two groups with respect to 12 major side-effects After administration of morphine, however, a significant difference between the two groups was observed for six of these side-effects, anorexia, nausea, vomiting, difficulty in focusing the eyes, fatigue, and pallor For each of these side-effects, the incidence was higher with the 15 mg dose

That some of the side-effects of morphine are not only unpleasant to a patient but also detrimental to his well-being (for example, anorexia, nausea, vomiting, and respiratory depression) is certainly true How close a parallelism exists between the incidence of such effects in healthy young males and in sick persons is less certain It is generally agreed that the recumbent position is less likely to bring on some of these effects (such as nausea) than is the ambulatory state Yet Lee and Pfeiffer[13] found that 7 out of 10 volunteer subjects who received 20 mg of morphine and who " remained in a supine position throughout the experiment to decrease the incidence of nausea and vomiting " spontaneously stated that they were nauseated, and 5 vomited Nausea or vomiting after administration of morphine has been reported in 43% of 103 bed patients by Steele,[14] in 27% of 105 patients by Narodick and Steele,[15] in 7% of 200 patients by Comroe and Dripps[12] and in 3 5% of 776 patients by Lee[10] The incidence of morphine toxicity in the patients in the analgesic studies of this laboratory is almost impossible to determine because of the numerous variables involved (anesthesia, surgery, etc) In the absence of data to the contrary, however, it is assumed that side-action liability from various doses of morphine in normal subjects probably parallels, in rough fashion, side-action liability in patients

COMMENT

Our data are similar to those obtained by other workers in showing a clear-cut difference between the effects of a placebo and morphine Loeschcke and associates[16] have stressed the importance of using 4 to 6% carbon dioxide to bring out significant differences Keats and

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[11] Houde R. W and Wallenstein S L. Studies on Analgetics at Memorial Hospital Evaluation of Analgetics in Incurable Cancer Patients, from Minutes of Eleventh Meeting, Jan 9 and 10 1953 Committee on Drug Addiction and Narcotics Washington D C., National Research Council 1953

[12] Comroe J H Jr and Dripps R. D Reactions to Morphine in Ambulatory and Bed Patients Surg., Gynec & Obst [illegible] 221 (Aug) 19[illegible]

[13] Lee R. E., and Pfeiffer C C., Influence of Analgesics Dromoran Nisentil and Morphine on Pain Thresholds in Man J App Physiol 4 193 (Sept) 1951

[14] Steele J D The Narcotic as a Factor in Postoperative Nausea and Vomiting Anesthesiology 4 [illegible]30 (July) 19[illegible]

[15] Narodick B G., and Steele J D The Use of Demerol in Patients Sensitive to Morphine Anesthesiology 9 [illegible] (May) 19[illegible]

[16] Loeschcke, H. H., Sweet A Kough R. H., and Lambertsen C J The Effect of Morphine and of Meperidine (Dolantin Demerol) upon the Respiratory Response of Normal Men to Low Concentrations of Inspired Carbon Dioxide J Pharmacol & Exper Therap 105 [illegible] (July) 19[illegible]

Beecher also found the difference between placebo and morphine more striking with 5% carbon dioxide inhalation than with inhalation of room air A partial explanation for this fact is that the depression of the respiratory center is manifested first by a decrease in its reserve, as measured by its ability to respond maximally to the driving force of an increased pressure of carbon dioxide in the arterial blood A second factor of importance, demonstrated by Loeschcke and associates [16] is the increase in alveolar and arterial pressure of carbon dioxide that occurs after a dose of morphine This acts in a compensatory fashion by increasing the stimulus to the respiratory center and thus masking the effect of the drug in patients breathing room air A third possibility comes to mind, however Ordinary respiration is subject to a certain amount of voluntary control The greater variability in respiratory rate and minute volume between subjects when breathing room air than between the same subjects breathing 5% carbon dioxide [17] suggests that the use of a powerful involuntary respiratory stimulus may override voluntary factors and thus reduce the variance due to nondrug factors

Because of simplicity of measurement, it is customary in many laboratories to report respiratory minute volume in such studies, although effective alveolar ventilation is actually the information desired The use of respiratory minute volume rather than effective alveolar ventilation seems partially justified by the failure to find significant changes in respiratory rate after administration of morphine in the doses used Although this lends support to the use of this parameter as a valid index of respiratory depression, the technique may lead to an underestimation of the depressant effects of morphine If the dead space does not change significantly, the per cent decrement in effective alveolar ventilation would be even greater than the decrement in respiratory minute volume, since the percentage of this volume contributed by dead space would be greater after administration of morphine than after administration of a placebo

SUMMARY AND CONCLUSIONS

A study of pain relief in 122 patients after operation revealed only slight increase in potency and duration of analgesia of morphine when the dose was raised from 10 to 15 mg The side-action liability and respiratory effects of these two doses were studied in 10 healthy volunteers In this latter group, a trend was observed toward greater respiratory depression with the larger dose, and a significantly higher incidence of troublesome side-effects was recorded A review of the literature indicates that 15 mg doses of morphine are probably unnecessary to relieve pain in the majority of patients receiving this drug and are apparently more productive of undesirable side-effects than 8 to 10 mg doses In view of these findings the routine use of 15 mg seems unwarranted The optimal dose appears to be 10 mg per 70 kg of body weight

[17] Keats, A S, and Beecher, H K, Analgesic Potency and Side Action Liability in Man of Heptazone, WIN 1161-2, 6-Methyl Dihydromorphine, Metopon Levo-Isomethadone and Pentobarbital Sodium as a Further Effort to Refine Methods of Evaluation of Analgesic Drugs, J Pharmacol & Exper Therap **105** 109 (June) 1952

HAZARDOUS EXPOSURE TO SOME SO-CALLED SAFE SOLVENTS

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There is scarcely an industrial plant or a business that does not use some solvents The kinds and the quantities vary from the can of type cleaner in the secretary's desk to tank car loads of less familiar substances used as degreasing agents in the metal trades or as vehicles in the manufacture of chemicals There are hazards in the handling of all solvents because of their appreciable volatility Some danger may be recognized by the user, but flammability and explosiveness are more likely to be considered than physiological action

The selection of a solvent for a specific purpose depends on technological factors, such as required action, volatility, handling practice (including vapor recovery), the tendency of the substance to leave a residual film on metal surfaces, cost, and availability The safety aspect may be introduced as a last consideration but, perhaps, only in terms of risk of fire or explosion The final choice usually is a compromise While none of the criteria for selection can be ignored, only rarely is it possible to meet all of the demands made The purchasing agent may suggest a low cost petroleum distillate, the fire chief may want carbon tetrachloride, and the safety engineer may propose a new preparation of dubious composition labeled "Safety Solvent—Nontoxic" No one will be completely satisfied, and the industrial hygiene adviser may be least satisfied of all A situation threatening to health now may arise One solvent may be accepted without question as being "safe" from the point of view of toxicity and then handled quite carelessly, another, recognized as being relatively toxic and requiring some control measures may be inadequately controlled Trouble can occur in either of these situations as suggested by some recently observed episodes

PULMONARY EDEMA CAUSED BY EXPOSURE TO METHYLENE CHLORIDE

CASE 1—A Negro male laborer, aged 19, was admitted to Cincinnati General Hospital because of shortness of breath, cough, and substernal pain of eight hours' duration On his first day of employment in a metal parts assembly shop, he had been given the job of degreasing small copper gaskets by dipping them into an open drum of methylene chloride He stated that the solvent bath "felt like ice water" on his bare hands He had smarting of the eyes on bending over the drum, and he noted an oppressive odor The work area was found to be in a small, dark brick garage There was no exhaust ventilation or mechanical equipment of any kind for the movement of air During the latter part of the shift this boy complained of excessive fatigue, weakness, sleepiness, lightheadedness, chilly sensations, and nausea

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He went home after a total of four hours of work He fell asleep at once and on waking two hours later felt very weak, short of breath, and had a dry, nonproductive cough He had substernal pain on coughing and deep breathing

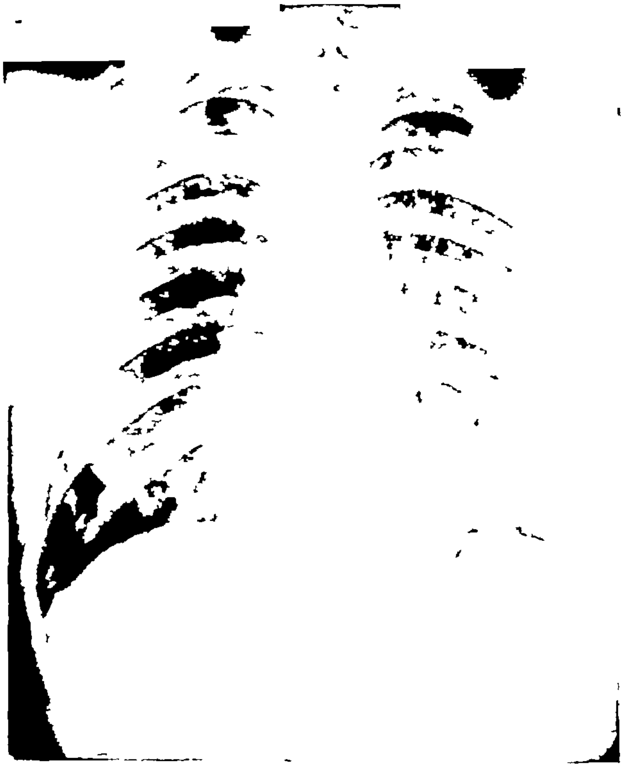
On admission to the hospital his temperature was 100 F, pulse rate 100 and respiratory rate 42 There was mild respiratory distress Rales were heard at the base of the right lung and occasionally elsewhere over the chest On a roentgenogram of the chest there was diffuse, fuzzy infiltration distributed bilaterally throughout both lung fields, characteristic of pulmonary edema (see figure) There was no conjunctivitis or irritation of the skin The patient was treated with 100 000 units of penicillin intramuscularly every eight hours but did not require the administration of oxygen Within 12 hours after admission and 18 hours after the last exposure, there was total relief of symptoms, the temperature, pulse rate, and respiratory rate were normal Faint inspiratory and expiratory rales were still heard at the base of both lungs, but these had disappeared a few hours later The results of complete blood cell count, urinalysis, blood culture, and blood urea nitrogen determination remained normal Chest roentgenograms made after intervals of three and five days were normal, and the patient was then discharged from the hospital

Methylene chloride, also called dichloromethane, CH_2Cl_2, has come into increasing industrial use as a paint remover, refrigerant, and, less extensively, as a degreasing solvent It has a pronounced narcotic action, but it is more irritating to the respiratory system and more excitatory than is chloroform[1] In industrial use only slight acute effects had been reported until 1952 when Moskowitz and Shapiro reported the clinical histories of four men exposed to a high concentration of methylene chloride vapor in a plant where an oleoresin was extracted from vegetable material[2] There was loss of consciousness in all of those exposed, with one immediate death and some irritation of the upper respiratory tract of short duration in the others

Methylene chloride had been described by Browning as "practically harmless" in ordinary use[1] When the local vendor of the solvent was advised of the illness of the boy referred to above he stated vigorously that some other solvent must have been used, since methylene chloride is so "safe " As a matter of fact, this was found to be the only volatile substance in the shop The suggested maximum tolerable concentration of methylene chloride under conditions of regular industrial employment is 500 ppm[3] Nevertheless, it should be recognized that this solvent is capable of acting as a pronounced respiratory irritant The probability of some absorption of the solvent through the skin, in addition to the inhalation of vapor, must be considered as a contributing factor in this case The halogenated hydrocarbons are excreted chiefly through the lungs, regardless of the mode of absorption Pulmonary irritation may occur as a result of the excretion, as well as the absorption, of these substances

ACUTE HEPATITIS FOLLOWING EXPOSURE TO TETRACHLOROETHYLENE

CASE 2 —A white male 25 year-old sales trainee of a chemical company was admitted to a hospital in another city in April 1953 because of jaundice weakness and anorexia The onset of symptoms had occurred 10 days earlier with nausea vomiting dark urine light brown stools, and deepening jaundice For six months prior to the onset of symptoms he had worked on maintenance and repair of solvent circulating systems in dry cleaning establishments For a period of 11 weeks up to the time that he became ill he had worked regularly on tetrachloroethylene units His job duties included the refilling of systems with solvent mechanical repairs and test running of units When emergency repairs were necessary he often worked 12 to 16 hour shifts and sometimes over week ends without regular days off Exposure to the solvent, both as liquid and vapor averaged over eight hours per day When lines were repaired some of the solvent drained out onto the floor The servicemen often worked near these spills The cleaning plants usually were hot, humid, and poorly ventilated No gloves or other personal protective equipment were used On one occasion this man had spilled a pail of tetrachloroethylene over his shirt and trousers He noted a burning and tingling sensation of the skin until he changed his garments several hours later On two or three occasions he became lightheaded when the concentration of vapor seemed especially heavy but returned to work after a short period in fresh air The odor of tetrachloroethylene became increasingly distasteful to him during this period For two weeks before the onset of illness there was excessive fatigue and unusual difficulty in rising in the morning



Roentgenogram of the chest of man exposed to methylene chloride (case 1)

The medical history was not significant except that the patient had received one intramuscular injection of penicillin in the treatment of a brief episode of nausea and vomiting on Feb 7 1953, 10 weeks prior to the onset of this illness He rarely drank any type of alcoholic beverage and never to the point of intoxication On admission to the hospital he was jaundiced The results obtained from tests of liver function were grossly abnormal and suggestive of hepatocellular dysfunction He made an uneventful recovery but when he was examined four weeks later there was still some evidence of impaired liver function The results of hemogram and urinalysis were within normal limits

He was removed from work on systems designed for the use of chlorinated hydrocarbon solvents but continued in the job of sales and maintenance work on other types of solvent units Ten months after the acute illness he reported that on one or two occasions when he had worked briefly near a tetrachloroethylene system he had experienced nausea immediately on detecting the faint odor of the solvent

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[1] Browning E Toxicity of Industrial Organic Solvents New York Chemical Publishing Company Inc, 1953

[2] Moskowitz, S and Shapiro H Fatal Exposure to Methylene Chloride Vapor A M A Arch Indust Hyg 6 116 (Aug) 1952

[3] Threshold Limit Values for 1954 Adopted at the Meeting of the American Conference of Governmental Industrial Hygienists Chicago 1954 A M A Arch Indust Hyg 9 530 (June) 1954

Tetrachloroethylene, $CCl_2 \cdot CCl_2$, also called perchlorethylene, is usually placed lowest in toxicity in the ascending series of chlorinated hydrocarbons used as dry cleaning agents [3] Until recently no unchallenged cases of toxic effects from its industrial use had been reported Coler and Rossmiller have now presented some clinical observations as being suggestive of impairment of liver function in three men of a group of seven engaged part time in the degreasing of small steel disks in a tank containing tetrachloroethylene [4] Complaints of headache, nausea lightheadedness, fatigue staggering gait, and mental confusion were said to have been common among these men Concentrations of tetrachloroethylene in the atmosphere of the workroom were reported to average from 232 to 285 ppm parts of air

In our patient little or no precaution had been taken to avoid inhalation of solvent vapor or contamination of the skin since tetrachloroethylene was regarded as being "practically nontoxic" Symptoms of narcotic effect on several occasions preceded the episode of acute illness characterized by jaundice It seemed clear that this man had absorbed tetrachloroethylene in substantial amounts The temporal relationship of the onset of acute hepatitis to repeated hazardous exposures suggests that solvent intoxication was either the sole causative factor in the illness or a contributory factor in rendering the liver susceptible to attack by an infectious agent

These two cases show injury to workmen resulting from the permission of inexcusably careless handling of compounds of a relatively low order of toxicity, but difficulties also may arise in dealing with solvents accepted as highly toxic when the measures provided for the control of exposure to them are either inadequate or unenforceable

NAUSEA AND VOMITING CAUSED BY EXPOSURE TO CARBON TETRACHLORIDE

CASE 3—A white female laboratory technician, aged 26, reported to the bureau of industrial health of the Cincinnati Health Department that she had just become ill on the job while handling carbon tetrachloride She complained of nausea and headache and had been unable to take her lunch She was employed in the quality control laboratory of a manufacturer of roofing materials A principal job duty was the solvent extraction of asphalt from samples of roofing paper This was done according to a standard specification by boiling strips of the asphalt-impregnated paper in a 1,000 ml beaker of carbon tetrachloride on an electric hot plate inside an enclosed hood equipped with an exhaust fan The strips in the beaker were agitated at intervals of two or three minutes during the 20 minute extraction period Extracted material and spent solvent were poured off into a drain inside the hood once or twice during each extraction and the beaker was refilled A glass sliding panel on the front of the hood was raised for this purpose Temperature and humidity in the laboratory room were controlled by air conditioning

The girl had worked on this job for a period of two years Shortly after being hired, on a day when the odor of carbon tetrachloride was strongly perceptible, she had had headache, nausea, and vomiting, causing her to lose three days from work One year later a similar episode occurred, and again she was off work for several days She now experienced nausea on days when outside wind velocity was so great as to interfere markedly with the action of the hood exhaust fan The illness reported to the health department had its onset on such a day There was improvement after being outside the laboratory for several hours, although headache persisted during the evening

CASE 4—A white female laboratory technician, aged 22, employed on the same job as the woman in case 3, complained of nausea and belching and was unable to take her lunch on this day While she had never been so ill as to remain off work, she did report mild nausea when she detected a heavy odor of carbon tetrachloride in the laboratory This occurred on the average of once weekly

An inspection of the laboratory was made a few hours after the report was received There was said to have been little change in conditions since the onset of symptoms in the technicians Samples of air collected at the breathing zone of workers standing at the hood contained carbon tetrachloride in average concentrations of from 30 to 344 ppm

Air movement at the opening face of the hood varied in velocity from zero to 20 ft per minute It was determined that the exhaust fan was totally ineffectual in removing contaminated air from the hood under certain recurring conditions of outside wind velocity and direction, such as occurred on the day of our inspection At these times positive pressure was created inside the hood, the direction of air flow was reversed, and contaminated air entered the workroom when the front panel was raised Recommendations were made for redesigning the exhaust system with the erection of a short stack to carry off the vapor Periodic determinations of the effectiveness of the proposed changes and added precautions in the handling of carbon tetrachloride by the technicians were suggested Substitution of a less toxic solvent was not possible because of standardization of the extraction technique

Carbon tetrachloride, a highly toxic substance, was being used in these cases under conditions erroneously regarded as entirely safe These two cases are reported for the purpose of emphasizing that complete safety in the handling of this treacherous solvent can be assured but rarely, and never when provisions for the protection of personnel are inadequate or unenforceable In general, the principle of substitution of a less toxic material should be followed whenever possible

TOXIC AMBLYOPIA CAUSED BY EXPOSURE TO METHANOL

CASE 5—A Negro laborer, aged 39, was admitted to Cincinnati General Hospital completely blind, complaining of vomiting, abdominal cramps, and severe headache of two days' duration, with increasing loss of vision as the other symptoms had subsided The onset occurred 48 hours after a Saturday night drinking bout during which he had consumed at least one-half pint of a mixture of wine and about an equal part of a clear, colorless liquid that he had drained from a metal drum at his place of employment

On admission to the hospital he was not acutely ill There was slight injection of the conjunctiva The pupils were dilated equally, measuring 6 mm in diameter Neither reacted to light except for occasional slight hippus on strong stimulation, but both contracted briskly on convergence There was slight marginal blurring of the optic disks The retina was normal except for the peripapillary regions, which were slightly edematous, with reduced transparency and obscuring of the deeper blood vessels The carbon dioxide capacity of the plasma was 45 vol % and the concentration of chlorides 476 mg per 100 cc The results of tests of liver function were within normal limits, the hemogram was normal There were numerous hyalin casts in the urinary sediment on admission and only a few on subsequent days The urine had a pH of 5 6 A specimen was tested for the presence of formic acid by a gallic acid method before and after reduction of portions of the distillate to formaldehyde Formic acid was found to be present in high concentrations

The patient worked at a plant engaged in the reconditioning of metal drums He had drained off liquid from the bottom of a returned drum, thinking it to be grain alcohol The drum was found to have contained a lacquer thinner composed of "hydrocarbons 50%, mixed alcohols 25%, and butanes or esters 25%" Three other men also had drunk some of the adulterated wine

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One of these, the patient in case 6 was admitted to the hospital at the same time with loss of vision and acidosis and the other two were said to have had nausea and vomiting. The patient admitted that it was common practice for employees to drink material from returned drums although this was in violation of company rules. He was discharged improved except for loss of vision, on the ninth hospital day. Three months later he still could barely perceive movement in bright light, and both optic disks were markedly atrophied.

Case 6.—A Negro janitor, aged 30 when brought to Cincinnati General Hospital was acutely ill, with impaired vision of two days duration. On the previous Saturday and Sunday he had drunk large amounts of the lacquer thinner described in case 5. The onset of symptoms occurred with severe headache on Monday afternoon. A few hours later he began to vomit. He became mentally confused, restless, and then disoriented. There was progressive dimming of vision on Monday night and Tuesday. On admission to the hospital Wednesday morning he was unable to perceive light. The conjunctivas were slightly injected. The pupils were widely and equally dilated and did not react to light. On funduscopic examination there was slight edema of the retinas at the periphery of both optic disks and maculas. The carbon dioxide capacity of the plasma was 20 8 vol % the concentration of chlorides was 508 mg per 100 cc, and the blood had a pH of 7 28. The results of tests of liver function were within normal limits. The hemogram was normal. The urine had a pH of 6, and a trace of albumin was found. There were no casts in the sediment and no reducing substances by the Benedict test. Sodium bicarbonate was administered intravenously over a period of 12 hours with considerable clinical improvement. By the third hospital day the patient was fully oriented. There was no light perception by the right eye and only slight perception by the left. The right pupil was fixed, and the left reacted sluggishly to light. he was unable to converge. The fundi were unchanged. An electrocardiogram on the fourth hospital day had a T wave of low voltage in leads 1 and 2 with inversion of the T wave in leads 3 V_1 V V_3 interpreted as indicating nonspecific myocardial damage. A needle biopsy of the liver was taken on the sixth hospital day, nine days after ingestion of the alcohol. This was reported as showing a few foci of nonspecific liver cell necrosis. The patient was discharged on the ninth hospital day. On examination five weeks later his vision was 5/200 in each eye. He was barely able to find his way through doors and to avoid large objects. There was now pronounced optic atrophy with deep cupping of both disks.

Case 7.—A Negro laborer aged 53, was brought to the Cincinnati General Hospital receiving ward because of the sudden onset of loss of vision. He stated that he had been in good health until the day before, when he had nausea, fever, chills, weakness, lightheadedness excessive thirst and mild shortness of breath on exertion. On wakening the following morning he was unable to perceive light with the left eye and only partially with the right. While the other symptoms improved during the next 48 hours he gradually lost remaining vision in the right eye. He was admitted to the hospital for study eight days after the onset of symptoms. He was now able to perceive light for the first time in four days. The pupils were equal markedly dilated and did not react to light or accommodation. The ocular fundi were of normal appearance.

The patient at first denied the ingestion of methanol or any other unusual substance but stated that he often drank whisky over week ends ordinarily "X" brand and had last had a drink two days before the onset of symptoms. He had been employed for 15 years in the operation of a wash tank in which used metal drums were dipped in sodium hydroxide as a first step in reconditioning. The drums were received from local industrial plants and usually had contained some chemical compound. Eight other men engaged in the same work apparently were in good health. The manager reported that while it was strictly against plant rules it was common practice for workmen to drain the residuum from drums that had an alcoholic odor. The patient was last observed to do this one month before the onset of illness when he filled a bottle from a drum and drank a portion of it. Near this man's work station at the plant an empty whisky bottle labeled "X" brand was found.

Over a period of 12 months there was gradual improvement of visual acuity to maximum uncorrected vision of 20/70 right eye and 4/200 left eye with residual evidence of optic atrophy more marked on the left side.

Methanol poisoning arising out of industrial exposure is secondary in importance to that due to ingestion of adulterated liquors. A few validated cases of poisoning of workmen following the inhalation of the vapor of methanol or absorption of the liquid through the skin have been reported. Even some of these bear the suspicion that the solvent may have been ingested as well. The chief danger of its use in industry still is the temptation to drink it. The cases described here, while not compensable as being due to occupational disease or injury, might have been prevented by closer control of solvent handling. The two unrelated episodes of typical methanol poisoning with blindness in men engaged in the reconditioning of metal drums have led me to regard the disorder as an unusual risk of this occupation, related to the temptation to drink from chemical containers that have the odor of alcohol. In all cases of Monday morning blindness Saturday night drinking habits should be considered and industrial sources of methanol investigated.

SUMMARY

There is danger in the handling of all solvents although fire and explosion are feared more commonly than are hazards to health. The selection of a solvent for a specific industrial use is a compromise between technological requirements and considerations of safety. Significant absorption of organic solvents by workmen may occur as a result of either one of two errors the acceptance of inexcusably careless handling of compounds of relatively low toxicity or the provision of inadequate control measures in dealing with more toxic ones. Instances of pulmonary edema following exposure to methylene chloride and of acute hepatitis in a man exposed to tetrachloroethylene are described as examples of the first type of error. The second is illustrated by the report of cases of illness due to exposure to the vapor of carbon tetrachloride and blindness from the ingestion of methanol obtained at work.

Eden and Bethesda Aves (19)

The Biological Approach to Immunity.—In a world that is full of microorganisms capable of infecting living tissues it is a positive necessity for survival that most experiences of infection by any given microbe should be followed first by recovery and secondly by a persisting insusceptibility to an attack of the same disease. Perhaps the important factor in the development of the particular types of immune reaction with which we are familiar in man was the evolution of his mammalian ancestors for the most part as relatively solitary arboreal animals in tropical jungles. In such environments it seems likely that the major type of pathogen that would be encountered would be those protozoa and viruses spread by insect—especially mosquito—vectors. It is not improbable that the type of immunity characteristic of human beings is essentially something evolved to deal effectively with infection by mosquito-borne viruses of the yellow fever type. At least we can be sure that immunity is a mechanism that has been evolved to deal with the entry of foreign microorganisms into the body and that it has been perfected by the normal process of selective survival.—Sir Macfarlane Burnet, M.D., The Newer Approach to Immunity in Its Bearing on Medicine and Biology, *British Medical Journal*, July 24, 1954.

two occasions when he had worked briefly near a tetrachloroethylene system he had experienced nausea immediately on detecting the faint odor of the solvent

Tetrachloroethylene, CCl_2 CCl_2, also called perchlorethylene, is usually placed lowest in toxicity in the ascending series of chlorinated hydrocarbons used as dry cleaning agents [1] Until recently no unchallenged cases of toxic effects from its industrial use had been reported Coler and Rossmiller have now presented some clinical observations as being suggestive of impairment of liver function in three men of a group of seven engaged part time in the degreasing of small steel disks in a tank containing tetrachloroethylene [4] Complaints of headache, nausea lightheadedness, fatigue, staggering gait, and mental confusion were said to have been common among these men Concentrations of tetrachloroethylene in the atmosphere of the workroom were reported to average from 232 to 285 ppm parts of air

In our patient little or no precaution had been taken to avoid inhalation of solvent vapor or contamination of the skin since tetrachloroethylene was regarded as being "practically nontoxic " Symptoms of narcotic effect on several occasions preceded the episode of acute illness characterized by jaundice It seemed clear that this man had absorbed tetrachloroethylene in substantial amounts The temporal relationship of the onset of acute hepatitis to repeated hazardous exposures suggests that solvent intoxication was either the sole causative factor in the illness or a contributory factor in rendering the liver susceptible to attack by an infectious agent

These two cases show injury to workmen resulting from the permission of inexcusably careless handling of compounds of a relatively low order of toxicity, but difficulties also may arise in dealing with solvents accepted as highly toxic when the measures provided for the control of exposure to them are either inadequate or unenforceable

NAUSEA AND VOMITING CAUSED BY EXPOSURE TO CARBON TETRACHLORIDE

CASE 3 —A white female laboratory technician, aged 26, reported to the bureau of industrial health of the Cincinnati Health Department that she had just become ill on the job while handling carbon tetrachloride She complained of nausea and headache and had been unable to take her lunch She was employed in the quality control laboratory of a manufacturer of roofing materials A principal job duty was the solvent extraction of asphalt from samples of roofing paper This was done according to a standard specification by boiling strips of the asphalt-impregnated paper in a 1,000 ml beaker of carbon tetrachloride on an electric hot plate inside an enclosed hood equipped with an exhaust fan The strips in the beaker were agitated at intervals of two or three minutes during the 20 minute extraction period Extracted material and spent solvent were poured off into a drain inside the hood once or twice during each extraction and the beaker was refilled A glass sliding panel on the front of the hood was raised for this purpose Temperature and humidity in the laboratory room were controlled by air conditioning

The girl had worked on this job for a period of two years Shortly after being hired, on a day when the odor of carbon tetrachloride was strongly perceptible, she had had headache, nausea, and vomiting, causing her to lose three days from work One year later a similar episode occurred, and again she was off work for several days She now experienced nausea on days when outside wind velocity was so great as to interfere markedly with the action of the hood exhaust fan The illness reported to the health department had its onset on such a day There was improvement after being outside the laboratory for several hours, although headache persisted during the evening

CASE 4 —A white female laboratory technician, aged 22, employed on the same job as the woman in case 3, complained of nausea and belching and was unable to take her lunch on this day While she had never been so ill as to remain off work, she did report mild nausea when she detected a heavy odor of carbon tetrachloride in the laboratory This occurred on the average of once weekly

An inspection of the laboratory was made a few hours after the report was received There was said to have been little change in conditions since the onset of symptoms in the technicians Samples of air collected at the breathing zone of workers standing at the hood contained carbon tetrachloride in average concentrations of from 30 to 344 ppm

Air movement at the opening face of the hood varied in velocity from zero to 20 ft per minute It was determined that the exhaust fan was totally ineffectual in removing contaminated air from the hood under certain recurring conditions of outside wind velocity and direction, such as occurred on the day of our inspection At these times positive pressure was created inside the hood, the direction of air flow was reversed, and contaminated air entered the workroom when the front panel was raised Recommendations were made for redesigning the exhaust system with the erection of a short stack to carry off the vapor Periodic determinations of the effectiveness of the proposed changes and added precautions in the handling of carbon tetrachloride by the technicians were suggested Substitution of a less toxic solvent was not possible because of standardization of the extraction technique

Carbon tetrachloride, a highly toxic substance, was being used in these cases under conditions erroneously regarded as entirely safe These two cases are reported for the purpose of emphasizing that complete safety in the handling of this treacherous solvent can be assured but rarely, and never when provisions for the protection of personnel are inadequate or unenforceable In general, the principle of substitution of a less toxic material should be followed whenever possible

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CASE 5 —A Negro laborer, aged 39, was admitted to Cincinnati General Hospital completely blind, complaining of vomiting, abdominal cramps, and severe headache of two days' duration, with increasing loss of vision as the other symptoms had subsided The onset occurred 48 hours after a Saturday night drinking bout during which he had consumed at least one half pint of a mixture of wine and about an equal part of a clear, colorless liquid that he had drained from a metal drum at his place of employment

On admission to the hospital he was not acutely ill There was slight injection of the conjunctiva The pupils were dilated equally, measuring 6 mm in diameter Neither reacted to light except for occasional slight hippus on strong stimulation, but both contracted briskly on convergence There was slight marginal blurring of the optic disks The retina was normal except for the peripapillary regions, which were slightly edematous, with reduced transparency and obscuring of the deeper blood vessels The carbon dioxide capacity of the plasma was 45 vol % and the concentration of chlorides 476 mg per 100 cc The results of tests of liver function were within normal limits, the hemogram was normal There were numerous hyalin casts in the urinary sediment on admission and only a few on subsequent days The urine had a pH of 5 6 A specimen was tested for the presence of formic acid by a gallic acid method before and after reduction of portions of the distillate to formaldehyde Formic acid was found to be present in high concentrations

The patient worked at a plant engaged in the reconditioning of metal drums He had drained off liquid from the bottom of a returned drum, thinking it to be grain alcohol The drum was found to have contained a lacquer thinner composed of "hydrocarbons 50%, mixed alcohols 25%, and butanes or esters 25% " Three other men also had drunk some of the adulterated wine

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The table shows that all the patients reacted strongly to the self-curing and regular monomers They also reacted to the disk made with the self-curing material They did not react to the polymer, the disk made with the heated material, or the Luxene bar

Results of Patch Testing of Patients with Allergic Sensitivity to Acrylic Monomer

	Case 1	Case 2	Case 3	Case 4
Self-curing monomer	3+	3+	3+	3+
Regular monomer	3+	3+	3+	3+
Polymer powder	Neg	Neg	Neg	Neg
Heat-cured disk	Neg	Neg	Neg	Neg
Self-cured disk	2+	2+	2+	2+
Luxene bar	Neg	Neg	Neg	Neg
Heat-cured acrylic dental plate	N	N	N	N

3+ = erythema edema and vesiculation
2+ = erythema and edema
Neg = no reaction
N = nonspecific pressure effects redness and swelling at maximum points of pressure

The only reactions obtained were with the self-curing and regular monomer Patch tests with the polymer, i e , polymethyl methacrylate, were negative With the heat-cured disk polymerization was apparently complete, and there was no residual monomer left to give a reaction With the self-cured disk, on the other hand, there was sufficient monomer left unpolymerized to produce a definite eczematous reaction on patch testing The Luxene bar, which is vinyl plate, in which acrylic monomer is used as a plasticizer, likewise showed no reaction, indicating that here also the acrylic monomer was completely polymerized The redness and slight swelling that I found on the removal of the entire dental plate I interpreted to be due to simple pressure effects It should also be noted that the patient reported on in case 3 was able to wear an upper and lower acrylic dental plate without any symptoms, and that the patient in case 4 could tolerate a partial denture of acrylic material This tends to show that persons who are very sensitive to the liquid acrylic monomer nevertheless tolerate heat-cured acrylic dental plates in which the liquid monomer has been completely polymerized

SORE MOUTH DUE TO DENTURES

The term "sore mouth due to dentures" [4e] is applied to any pathological change of the oral mucosa due to dental plates, whether the cause is allergic, traumatic, or toxic If the cause is allergic, the term "stomatitis venenata" is used by some authors The patient may complain of a burning sensation, soreness, dryness, or excessive salivation Examination of the oral mucosa may show punctate or diffuse redness with or without erosions At times the mucosa looks normal, yet the patient complains of a sore mouth when wearing the denture On the other hand a routine examination may show a deep red imprint of the denture, but the wearer has no complaints

I studied 20 patients who wore acrylic dentures and had sore mouth due to dentures Their symptoms had been present for three months to two years All the patients were women I have been unable to explain the reason for the absence of male patients in this series Four of these patients had been informed, either in our clinic or elsewhere, that they were allergic to their acrylic dentures and they had been advised to change to another type of denture

The diagnosis, in large part, had been based on an alleged positive patch test obtained after the denture had been strapped to the forearm for 48 hours I was fortunate to be able to contact the four patients, retest them, and reappraise the diagnosis of allergy to their acrylic dentures The case histories of the four patients labeled as being allergic to their acrylic dentures are briefly presented below

Case 5 —A 70-year-old woman had had burning and soreness in the mouth soon after acquiring a complete set of acrylic dentures Examination had showed a diffuse redness of the hard palate with a few scattered punctate erosions A patch test performed by strapping the entire denture to the patient s forearm for 48 hours had resulted in a fine vesicular eruption under the denture The patient had been informed that she was allergic to acrylic dentures and she had been advised to change to rubber plates Wearing a rubber denture had not ameliorated her symptoms Finally, on the advice of another dentist, a new, well-fitting acrylic plate had been made that the patient now wears without any symptoms This new upper acrylic plate was strapped to her forearm for 48 hours Redness, papules, and vesicles appeared at the points of pressure of this new acrylic plate, which was causing no oral symptoms (fig 1) Indeed, I was able to reproduce these nonspecific pressure effects by strapping a jar cover made of tin on her forearm for 48 hours After histological examination of one of these vesicles, it was reported as a subepidermal bulla. Patch testing with the acrylic monomer showed negative results

This patient, then, who had been informed that she was allergic to acrylic dentures because of a positive reaction of redness and vesiculation caused by strapping an acrylic denture on her forearm for 48 hours, had no difficulty in wearing properly fitting acrylic dentures The rubber dentures and her first set of acrylic dentures, according to her dentist had been ill-fitting, and the oral symptoms were caused by trauma

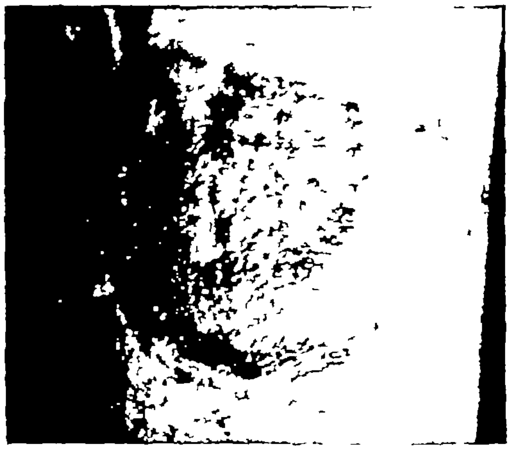

Fig. 1 —Photographs showing result of strapping an acrylic denture to the forearm of the patient reported on in case 5 for 48 hours Evidence of a nonspecific pressure effect not of allergic sensitization is seen.

Case 6 —A 65 year-old woman had been informed that she was allergic to acrylic denture material on the basis of a positive patch test to her denture At the time of examination she was using a rubber denture and her symptoms of burning and soreness in the mouth continued Even when the dentures were not used the symptoms were not much improved Patch testing by applying a rubber plate on the left arm and an acrylic plate on the right arm for 48 hours resulted in redness and papules at the site of maximum pressure on both arms Patch tests with acrylic monomer and several types of rubber showed negative results This patient has a moderately severe anemia, and there is a possibility that the symptoms are caused by the anemia.

CASE 7 — A 50 year-old woman had been suffering from sore mouth due to dentures for three years For many years she also has had recurrent aphthae of the oral mucosa Three years ago after she acquired a new set of acrylic dentures, her mouth became very sore The acrylic plates were then relined with the self-curing material Immediately the mouth symptoms became worse She then changed to rubber dentures with some improvement however, the aphthae and burning sensation in the mouth continued Recently, because she did not like the appearance and feel of the rubber dentures, she changed to a new set of acrylic dentures which she is now wearing without any difficulty except for the aphthae Patch tests with the acrylic monomer elicited a strongly positive reaction A patch test with the acrylic denture showed some redness and papulation at the point of pressure A patch test with the heat-cured acrylic disk was negative Patch testing with the self-curing disk showed a true eczematous positive patch test characterized by redness, swelling and fine vesiculation Patch tests with several rubber materials gave negative reactions

In retrospect, I feel that the patient was not allergic to her original acrylic plates They apparently did not fit well The relining material used to remedy the ill-fitting dentures apparently had enough unpolymerized monomer to cause an acute stomatitis venenata A positive patch test to the liquid monomer showed that the patient had allergic sensitivity to this substance, however she can now wear, without difficulty, well-fitting acrylic dentures in which the monomer is completely polymerized This is further borne out by the negative patch test to the heat-cured acrylic disk, while a positive reaction is obtained by testing with the self-curing disk, which has enough residual monomer to cause a positive reaction

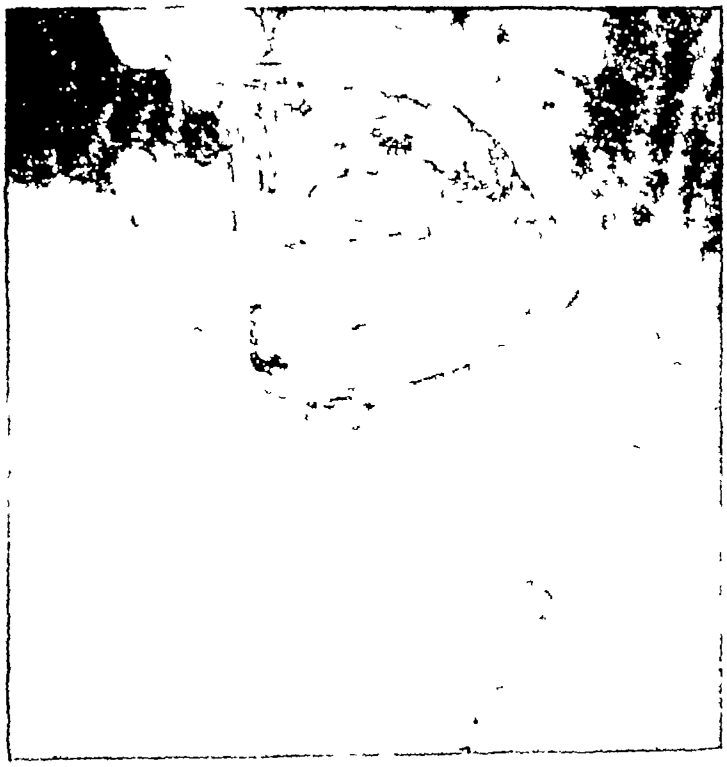

Fig 2.—Photograph showing bullous reaction to testing with an acrylic plate in the patient reported on in case 8 The reaction is caused by a nonspecific pressure effect

CASE 8 —A 53-year-old woman, in 1951, had burning of the mouth and glossitis of two years' duration Examination of the oral mucosa had showed slight diffuse redness Patch testing at that time with her entire upper denture was said to have been positive, and she was told to change her plates, however, she could not afford to get new plates and continued to wear the old ones One year later, after a cholecystectomy, all the oral symptoms disappeared in spite of the fact she was wearing her original acrylic plates Patch testing to the monomer and acrylic disk was negative Strapping her denture on her forearm for 48 hours resulted in redness and papulation and a few large bullae (fig 2) These bullae I interpret as being caused by a nonspecific pressure effect Furthermore, these bullae could be reproduced by use of a rubber denture Histological examination showed a subepidermal bulla

In addition to these 4 patients, 16 additional patients who had sore mouth due to dentures were studied Each patient was patch tested to the following materials (1) acrylic monomer, (2) the powdered polymer, (3) the heat-cured acrylic disk, and (4) the self-cured acrylic disk All these tests were negative for a true allergic eczematous reaction In very hot weather most of the patients showed a nonspecific follicular, prickly-heat-like eruption on removal of the disks In addition each patient had her upper denture strapped to her forearm for 48 hours There were no true reactions of allergic sensitization All the reactions noted I interpreted as being due to nonspecific pressure effects Where bullae formed and were studied histologically, the report was subepidermal bullae without any eczematous reaction

In order to ascertain whether the liquid monomer was a primary irritant, 100 consecutive patients were patch tested with this material These were patients seen in the allergy section who did not wear dentures but were being tested for other conditions In only one of these patients was there a slight erythema after 48 hours I did not retest with the monomer to see how many patients I could sensitize

In addition I strapped an entire upper acrylic denture for 48 hours on the forearms of 20 men and 50 women control patients who did not have any mouth symptoms In 2 men and 12 women, small bullae formed under the plates In all cases there was some degree of redness and papulation on removal of the dentures, there was more in the women than in the men Histological examination of the lesions showed subepidermal bullae There was no apparent eczematous change I therefore interpreted these bullae as being caused by simple pressure effects and not by allergic sensitizations Furthermore, in no case did the erythema, papules, vesicles, or bullae spread beyond the points of maximum pressure, as often happens in true allergic eczematous reactions

COMMENT

In this series of 20 patients with sore mouth caused by dentures, no patient was allergic to the completely polymerized acrylic denture In this group there was one case of allergic hypersensitivity to the acrylic monomer However, this patient could wear her acrylic dentures providing no unpolymerized monomer was present in the relining material This agrees in the main with the finding of Nyquist[4e] who could find no case of allergic reaction in 248 patients with sore mouth caused by dentures

I must emphasize at this point that the clearing of a stomatitis when a denture is not worn and the prompt recurrence of a sore mouth with the use of the plate is no proof of allergic sensitization to the denture Pressure and trauma of an ill-fitting plate may result in the same symptom complex

Rattner [4f] reported three cases of stomatitis venenata that he attributed to the wearing of plastic cellulose dentures. He was among the first to employ the method of testing the dental plates by strapping the entire denture on the patient's forearm and leaving it in place for 24 to 48 hours. Bradford [4g] described an unusual case of stomatitis with a generalized erythematous eruption that appeared soon after the patient acquired a new set of acrylic plates. After the eruption had subsided, a skin test was carried out by strapping the denture to the forearm. Within 48 hours, a rash appeared at the point of contact of the acrylic plate and the skin.

Most of the authors already mentioned discuss allergic reactions to acrylic dentures. The consensus is that while such allergic sensitization possibly does exist, the incidence is very low. All these authors indicate that patch testing with the entire plate or with scrapings from the plate is the proper method for detecting such allergy.

Beall and Caul [4b] reported reactions to the self-curing acrylic resins used for lining dentures. By means of a questionnaire, they learned that 88% of the dentists reported that their patients complained of a burning sensation after the use of a relined denture. The discomfort lasted a few hours to a day or so. There was no indication of allergic sensitization to this material in this report, since the patients continued to use the relined plates without difficulty after the initial burning sensation.

Vickers [4i] reported seven cases of angular fissure formation with some degree of stomatitis that were presumably caused by sensitization to dentures. Scrapings from the suspected dentures were applied for 48 hours, and there was no difficulty in reading the results. Some of these patients apparently wore acrylic dentures, others wore rubber dentures. Stoy,[4c] however, patch tested all patients with suspected angular stomatitis but reported that he had obtained no obvious positive patch tests and could not prove that any of his cases of angular stomatitis were due to sensitivity to the acrylic dentures. I similarly studied eight patients with perleche (angular stomatitis), and in none could I prove that the acrylic dentures were the cause of the angular stomatitis. In four patients who did not wear the dentures for two weeks, the angular stomatitis remained unimproved. In all eight patients there was no evidence of allergic sensitization by patch testing to the acrylic monomer.

Nyquist,[4e] in his recent treatise on sore mouth caused by dentures, found that patch testing with grindings or scrapings from the suspected dentures incurred the least risk of mechanical lesions of the skin. He admits that testing with the entire denture or pieces of the denture might give false reactions in the form of erythema of the patch test site, which could be confused with a true allergic reaction.

I also believe that patch testing by strapping the entire plate to the forearm may lead to many diagnostic errors, since redness, papulation, vesiculation and even bulla formation may result from nonspecific pressure effects. To the uninitiated, such findings may be easily confused with a true allergic reaction. Furthermore, there seems to be no necessity for testing with an entire plate or even with grindings from the denture because the completely polymerized resin is allergenically inert. My results show that patch testing with the liquid monomer alone is sufficient to indicate the presence or absence of allergic sensitization to acrylic denture material. The polymer and the heat-cured plate have not been shown to be sensitizers.

Persons who are highly sensitive to the monomer may nevertheless wear acrylic dental plates, providing the monomer has been completely polymerized. Spealman and his co-workers [4j] similarly showed that 10 experimental subjects, whom they had sensitized to the monomeric methyl methacrylate, were not allergic to the completely polymerized product (in this case Plexiglas), in spite of the fact that the finished product was made with the monomer.

In those cases in which it is suspected that relining or repair material made with self-curing dental resin is causing symptoms, patch testing with the liquid monomer alone is again sufficient. The positive patch test with the liquid monomer would tend to confirm the implication that the relining material was at fault. A negative patch test to the liquid monomer would seem to rule out the role of allergic sensitization to either the heat-cured plate or the self-curing material.

I feel that there is apparently no necessity for testing the liquid monomer directly on the oral mucosa. Many workers, including Jadassohn [5] and Sulzberger,[6] have shown that the oral mucosa may be the site of allergic reactions analagous to the allergic eczematous contact reaction of the skin. Goldman and Goldman [7] showed, by direct oral mucosal contact testing, the close similarity of the reaction of the skin and mucosa. These *authors concluded that contact stomatitis is usually associated with contact cutaneous allergies, actual or potential.* In my studies [8] of the allergic contact type of reactions to toothpaste, I have found that the oral mucosa and the perioral skin and the skin of the extremities react similarly. The ingredients suspected clinically as causing the oral symptoms were revealed by positive patch test on the skin. While such a relationship is not invariable, patch testing of the skin can usually be relied on to indicate sensitivity of the oral mucosa as well.

SUMMARY

Four patients were studied who had an allergic contact type of dermatitis of the hands that was proved clinically and by patch testing to be due to allergic sensitivity *to the liquid monomer (methyl methacrylate).* These patients were not allergic to the polymethyl methacrylate powder or to the heat-cured denture material. Two of these patients could wear acrylic dentures in spite of the fact that they were sensitive to the monomer. They were also sensitive on patch testing to denture ma-

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[5] Jadassohn, J Bemerkungen zur Sensibilisierung und Desensibilisierung bei den Ekzemen im Anschluss an einen Fall von Odolekzem Klin Wchnschr 2 1690 1923

[6] Sulzberger M B., and Goodman J Acquired Specific Hypersensitivity to Simple Chemicals Cheilitis with Special Reference to Sensitivity to Lipstick, Arch Dermat. & Syph. 37 597 (April) 1938

[7] Goldman L and Goldman B Contact Testing of the Buccal Mucous Membrane for Stomatitis Venenata *Arch Dermat & Syph* 50 79 (Aug.) 1944

[8] Fisher A A and Lipton M Allergic Stomatitis Due to "Baur" in Dentifrice A M A. Arch Dermat & Syph 64 640 (Nov) 1951 Fisher A A and Tobin, L Sensitivity to Compound G-4 ("Dichlorophene") *in Dentifrices J A M A 151 998 (March 21) 1953*

terial made with the self-curing monomer, showing that with this material there is sufficient unpolymerized monomer that can produce reactions

Twenty cases of sore mouth caused by dentures were studied Four of these patients had been told that they were allergic to their acrylic dentures because of positive reactions obtained by strapping their plates on the forearm for 48 hours Three patients changed to another type of denture without relief One of the patients was found to be allergic to the monomer but could wear a heat-cured acrylic denture without difficulty In none of the cases could I prove that allergic sensitivity to acrylic denture material played a role in sore mouth caused by dentures Seventy controls, 20 men and 50 women, had dentures strapped on their forearms In 48 hours all reacted with some degree of redness and papulation In 2 men and 15 women, small bullae formed at points of maximum pressure Histological examination showed subepidermal bullae without eczematous response

CONCLUSIONS

Methyl methacrylate liquid monomer is a sensitizer and can cause an allergic contact type of eczematous reaction on the skin and the oral mucosa When it is completely polymerized, it is no longer a sensitizer or elicitor llergic reactions No instance of allergic sensitization eat-cured acrylic denture material was found in 20 ients with sore mouth caused by dentures Self-cured crylic denture material has sufficient unpolymerized monomer to give reactions in patients sensitized to the monomer

Testing for allergic sensitization to acrylic denture material by using the entire denture or with grindings or scrapings of the denture is unnecessary, since testing with the monomer alone will indicate the presence or absence of allergic sensitization to the denture material The polymer and the completely polymerized material apparently are not sensitizers Many persons will react to the strapping on for 48 hours of any type of denture on their forearm with redness, papulation, and even bullae formation This appears to be a nonspecific pressure effect, since histological examination of these bullae showed simple subepidermal bullae without any eczematous reactions

45-14 48th St

Urinary Infection—The preferred agents for the initial treatment of urinary infection of all varieties should be one of the sulfonamide drugs These drugs have several advantages over the antibiotics as follows 1 They are effective against a greater variety of organisms 2 They are attended by fewer unpleasant side effects than most of the antibiotics, especially those administered orally We have encountered only 11 instances of drug sensitivity to sulfonamides, 8 to sulfadiazine, and one each to Terfonyl, Gantrisin, and Sulfathalidine All but one of these reactions were mild, consisting of skin rash, slight diarrhea, or slight nausea and vomiting One patient who had taken sulfadiazine successfully several times before eventually developed a febrile reaction to the drug 3 An antibiotic is likely to be entirely ineffective if used before the culture is reported Each of the antibiotics is completely ineffective against some of the organisms that cause urinary infection 4 The sulfonamides are cheaper—H S Everett, M D, and J H Long, M D, The Treatment of Urin Infections, *American Journal of Obstetrics and Gynecolo* 954

CLINICAL NOTES

PITUITARY BASOPHILISM IN THE JUVENILE TYPE OF ACANTHOSIS NIGRICANS

Stephen Rothman, M D, Chicago

Acanthosis nigricans is characterized by the formation of hyperpigmented, velvety plaques that occur mainly on the lateral aspects and nape of the neck and in the axillas and groins Microscopically, these plaques show papillary hypertrophy, waviness of the surface, thickening of the epidermis, hyperkeratosis, and hyperproduction of melanin pigment Around the plaques of acanthosis nigricans single, nonpigmented papilloepitheliomas, pendulous fibromas, and verruciform excrescences are often seen Two distinct types of acanthosis nigricans are recognized In the first (malignant or adult) type, malignant tumors of internal organs can invariably be found In the second (juvenile or benign) type the plaques appear at an early age, and no malignant lesion is demonstrable Interestingly, however, in two reported cases [1] one parent of each patient died early from bronchogenic carcinoma Patients with acanthosis nigricans of the benign or juvenile type are usually excessively obese Some of the patients have glycosuria at irregular intervals,[1b] some show a delayed type of glucose tolerance curve,[2] some have exertional hypertension, some show a tendency to stria formation,[3] and some have severe acne [4] As early as 1925 the idea was advanced [5] that in both types of the disease growth-promoting substances in the blood might cause papillary hypertrophy in the skin These substances, it was thought, may derive from the neoplasm in the adult type and from the hormonal imbalance in the juvenile type In the last 10 years the possible pituitary origin in the juvenile type was discussed several times in the Chicago Dermatological Society [6], it was pointed out that although the clinical picture resembles pituitary basophilism (Cushing's syndrome) many of its features, particularly electrolyte shifts, are lacking in obese persons with acanthosis nigricans and that in this disease endocrine disturbances cannot be definitely shown clinically or by laboratory methods

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From the Section of Dermatology Department of Medicine University of Chicago

Read before the Seventy-Fourth Annual Meeting of the American Dermatological Association White Sulphur Springs W Va April 14, 1954

Discussion of this presentation will appear in the author s reprints

[1] (*a*) Brünauer Akanthosis nigricans Benigner, juveniler Type Zentralbl Haut- u Geschlechtskr **37** 786-787 1931 (*b*) Curtis A C, in discussion on Rothman S and Henningsen A B Acanthosis Nigricans of the Juvenile Type Mild Diabetes and Obesity, Arch Dermat & Syph **48** 468-469 (Oct) 1943

[2] *Miescher G Zwei Fälle von kongenitaler* familiärer Akanthosis nigricans kombiniert mit Diabetes mellitus Dermatol Zeitschr *32* *276-305 1921 Jadassohn W Familiäre Acanthosis nigricans* kombiniert mit Fettsucht Arch Dermat u Syph **150** 110-114 1926 *Rothman* and Henningsen [1b]

[3] Rothman, S in discussion on Omens, D V and Omens H D Acanthosis Nigricans (Juvenile Type) Arch Dermat & Syph *53* *194* (Feb) 1946

[4] Binkley G W and Barr J H Acanthosis Nigricans *Benign Type with Acne and Active Duodenal Ulcer* Arch Dermat & Syph **53** 69-70 (Jan) 1946

[5] Rothman S Uber Hauterscheinungen bei bösartigen Geschwülsten innerer Organe Arch Dermat u Syph **149** 99 123 1925

[6] Rothman S, and Shapiro A L Acanthosis Nigricans Juvenile Type, Arch Dermat & Syph **52** 59 (July) 1945 Rothman S, in discussion on Spencer H Acanthosis Nigricans Probably *Juvenile Type ibid* **63** 810 (June) 1951 Rothman and Henningsen [1b] Rothman [3]

REPORT OF A CASE

A 41-year old business executive was first admitted to the Albert Merritt Billings Hospital in March, 1945, because of obesity, dyspnea, orthopnea, some swelling of legs, insomnia, and frequency of urination On admission he weighed 345 lb (155 5 kg) He stated that he had been underweight up to the age of 7 In the next years he had become "rather plump," but thereafter, engaging in athletics he had become thin again At the age of 18 he had weighed 175 lb (79 4 kg), at this time he was found to have tachycardia and was told to refrain from athletics From then on he had gradually gained weight, 5 to 10 lb (2 3 to 4 5 kg) per year In the last two years, however, he had gained 60 lb (27 2 kg.) He had always been able to lose weight by rigorous dieting According to the referring psychiatrist s information, the patient had been impotent for several years Family history revealed obesity of the patient's mother and one maternal aunt On physical examination, this excessively obese man (fig 1) was found to breathe with slight difficulty when lying in bed The heart was slightly enlarged, otherwise chest and abdominal organs were found to be normal External genitalia were small Many cutaneous papillomas and cutaneous tags were seen on the eyelids on the nape of the neck in the axillas, around the navel and in the groins Pigmented areas with papillary hypertrophy were present on the nape of neck, in both axillas, and on the medial aspects of the thighs (fig 2) In dermatological consultation the diagnosis of acanthosis nigricans, juvenile type, was made, and this diagnosis was confirmed by histological examination of a biopsy specimen of the skin (fig 3) It was stated that this cutaneous syndrome might be of pituitary origin An electrocardiogram revealed slight myocardial abnormality The basal metabolic rate was +1% Roentgen examinations showed a normal chest and normal sella The urine contained small traces of albumin but no cells The hemoglobin level was 16 gm per 100 cc, erythrocyte count 5,400,000 and leukocyte count 9,500 per cubic millimeter, and differential count normal Total protein level and albumin-globulin ratio were normal Fasting blood sugar was 73 mg. per 100 cc The glucose tolerance showed delayed rise and delayed fall (fasting value 73, one-half hour value 105, one hour value 142, one hour value 152, and three hour value 102 mg per 100 cc) Tests of the urine showed absence of sugar throughout the test (fig 4) Ophthalmologic examination revealed slight sclerosis of retinal vessels

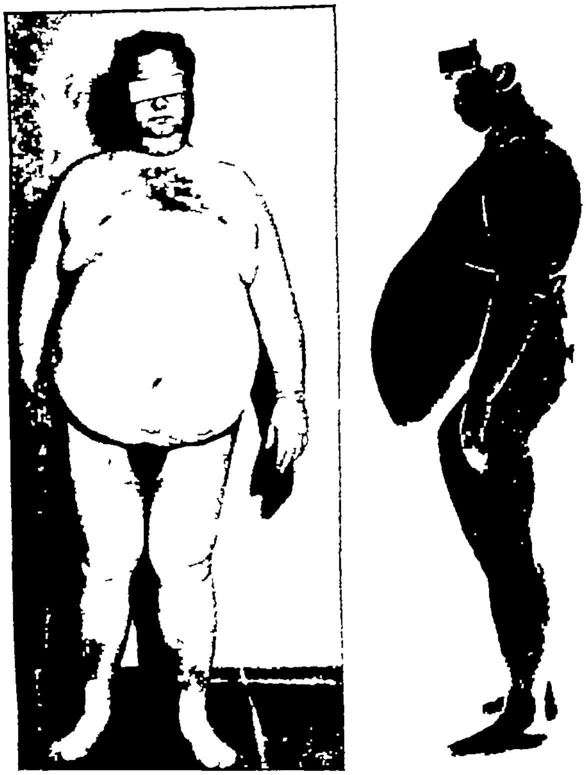

Fig 1 —Clinical appearance of the patient.

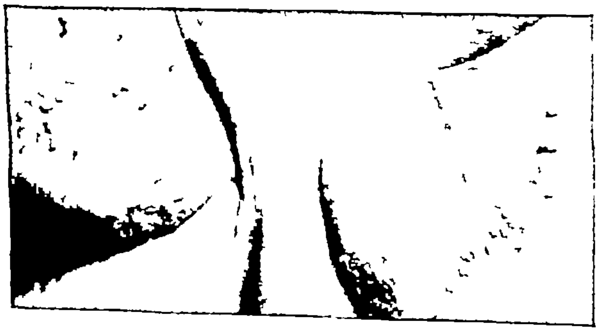

Fig 2 —Lesions of acanthosis nigricans on the medial aspects of thighs

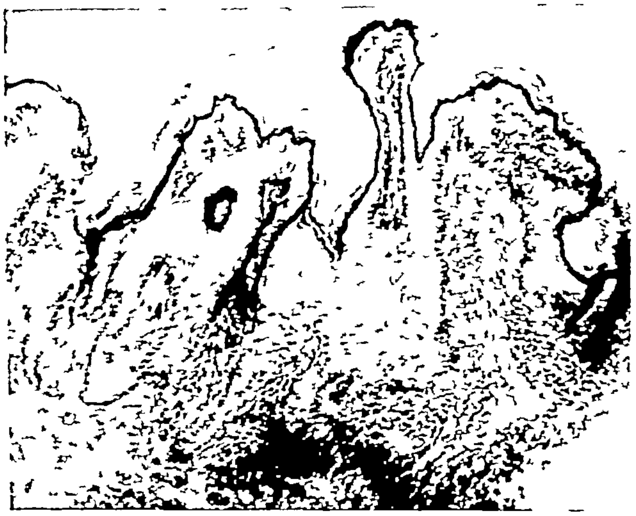

Fig. 3 —Photomicrograph of section of skin from an acanthosis nigricans lesion (silver stain)

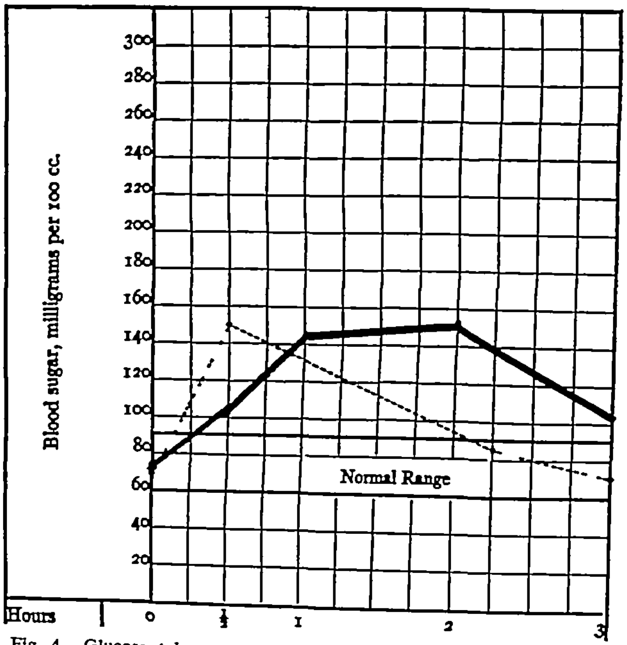

Fig. 4 —Glucose tolerance test of the patient (heavy line) compared with normal glucose tolerance test (broken line)

In the years from 1945 to 1953 the patient was admitted to the hospital eight times On each of these occasions he received diets ranging from 600 calories per day to pure starvation (black coffee and cigarettes) he lost considerable weight (for instance, 15 kg in six to seven weeks) and had some relief of symptoms, but on returning home he soon regained his original weight and continued to gain more weight The endocrinology service could find no endocrine disturbance either by clinical or by laboratory examinations Neurological examination also was normal According to the testimony of family members the patient when at home, was unable to keep to any diet but raided the icebox at night quite regularly The conclusion was arrived at that the obesity was caused by psychogenic overeating Psychiatric interviews strongly supported this opinion From this point of view the patient's case will be reported on later by the gastroenterology service of the hospital

The final admission of the patient was in April, 1953, when he entered disoriented drowsy and cyanotic after a severe coughing episode He had increasingly severe respiratory distress and pulmonary edema and died the next day On autopsy the main finding was basophilism of the pituitary gland, considerably more than half of the cells being basophilic The section of the pituitary gland shown in figure 5 was stained with Gomori's aldehyde-fuchsin-trichrome combination[7] Sections stained with periodic acid-Schiff stain and with hematoxylin-eosin have yielded similar pictures The adrenal glands were normal in size and shape, and there was no hypertrophy of the cortex

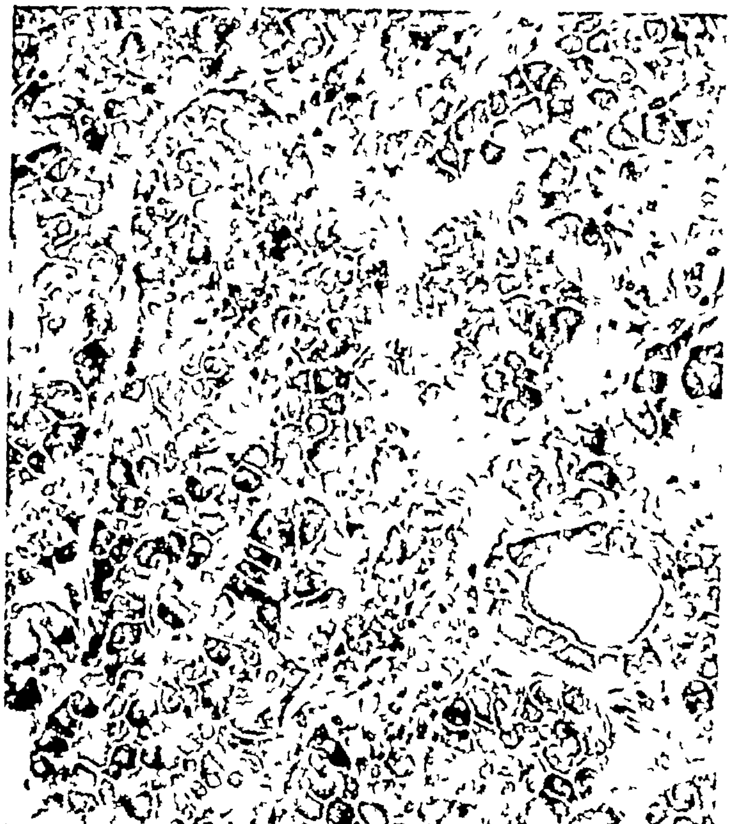

Fig 5—Photomicrograph of section of pituitary gland of patient with acanthosis nigricans, showing pituitary basophilism Dark cells are basophils (aldehyde fuchsin stain of Gomori) (× 240)

COMMENT

As far as I have been able to establish, this is the first case of acanthosis nigricans, juvenile type, in which there has been a postmortem examination of the pituitary gland Possibly in other cases of this disease a similar abnormal state of the pituitary gland is present It is suggested that basophilism may cause two distinguishable entities first, classical Cushing's syndrome, and second, obesity with acanthosis nigricans, borderline disturbances of carbohydrate metabolism, and one or another incompletely developed feature of Cushing's syndrome This separation is based on the facts that in patients with classical Cushing's syndrome the occurrence of acanthosis nigricans has never been reported and that in patients with acanthosis nigricans the picture of Cushing's syndrome never fully develops

SUMMARY

In a case of acanthosis nigricans of the benign, juvenile type, autopsy revealed diffuse basophilism of the pituitary gland Patients with Cushing's syndrome and patients with the juvenile type of acanthosis nigricans have much in common, but the two conditions are clinically distinguishable entities

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[7] Gomori, G A Rapid One-Step Trichrome Stain Am J Clin. Path. **20** 661-664 1950, Aldehyde Fuchsin A New Stain for Elastic Tissue ibid **20** 665-666, 1950

ACTINOMYCOTIC DIVERTICULOMA OF THE SIGMOID COLON

Harry S Hoffman, M D, Atlantic City, N J

Actinomycosis in the sigmoid colon is rare, judging by the very few cases reported in the literature The fact that correct diagnosis was not made preoperatively or during life in any of the recorded cases of colonic actinomycosis justifies special consideration of the disease There are only six reported cases of primary actinomycosis of the sigmoid colon[1], in four of these, an actinomycotic mass was excised under the impression that it was a malignant mass[2] The case presented here is of interest as the seventh report of this disease and the first reported instance of an actinomycotic diverticuloma

REPORT OF A CASE

A 48-year-old white woman was admitted to the Hahnemann Hospital of Philadelphia complaining chiefly of intermittent colicky pain in the left lower quadrant of the abdomen of three years' duration, which had become much severer in the preceding two months These attacks were associated with increasing constipation, attacks of diarrhea, and slight nausea There had been no weight loss, vomiting, or blood or pus in the stools The history revealed that during an appendectomy performed five years previously a diagnosis of diverticulosis of the colon had been established Physical examination failed to reveal any palpable portion of the colon No masses could be felt There was some increase in tympany throughout the abdomen and occasional hyperperistaltic sounds The liver and spleen could not be palpated Rectal examination was normal Sigmoidoscopic examination for a distance of 19 cm was normal, at this level a very sharp angulation was noted that was apparently fixed, although there was no evidence of mucosal ulceration The sharp and fixed angulation prevented the passage of the sigmoidoscope beyond this point A barium enema revealed a rapid flow from rectum to cecum with reflux into a normal-appearing terminal ileum There were numerous diverticula of the distal half of the colon The midsigmoid was narrowed and spastic There was an extrinsic pressure defect of the lateral aspect of the midsigmoid, as though a rounded mass of about 3 cm diameter was pressed against the colon at that point The pressure defect was persistent A long, sharpened diverticulum without a rounded extremity extended into the extrinsic defect There was no evidence of infiltration of the intestine wall around the defect This area of the sigmoid, though persistently narrowed, was slightly distensible, it was very tender, its mucosal pattern was edematous and distorted but was not destroyed After evacuation the mucosal pattern appeared normal except for distortion in the area of diverticulitis The patient was apparently in good health and well nourished Her pulse rate was 78 per minute, respiratory rate 20 per minute, and temperature 98 F Her abdominal wall showed an old appendiceal scar A blood cell count showed 5 020 000 red blood cells per cubic millimeter and 7 100 white blood cells per cubic millimeter, with 65% polymorphonuclear cells, 31% lymphocytes, 1% eosinophils and 3% monocytes

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[1] Cope V Z. Actinomycosis Involving the Colon and Rectum J Internat Coll Surgeons **12** 401 (July Aug.) 1949

[2] Cope, Z Actinomycosis London England Oxford University Press 1938

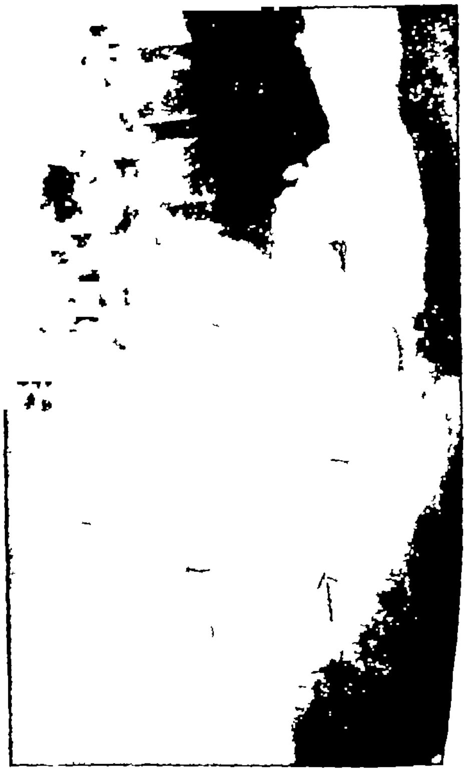

Fig 1 —Roentgenogram showing a pressure defect on the lateral wall of the sigmoid caused by an extrinsic mass The diverticula of the sigmoid extend into the area of the mass

The sedimentation rate was 25 mm per hour The blood sugar level was 80 mg per 100 cc blood urea nitrogen, 15 mg per 100 cc Kahn and Wassermann tests and a Kolmer test of the spinal fluid were negative The colloidal gold curve was normal Spinal fluid culture was sterile after 72 hours Urinalysis was normal The stool showed no mucus, blood, ova or parasites

A preoperative diagnosis of diverticulitis of the colon with abscess formation and/or neoplasm was made, and a laparotomy was performed With the patient under continuous spinal anesthesia a left rectus muscle splitting incision was made through which the diseased portion of sigmoid colon was freed and excised, bowel continuity was reestablished with an end-to-end anastomosis The excised segment of sigmoid colon measured 8 cm in length by 4 cm in diameter The wall was thickened to 5 mm , and several diverticula were noted within it. The mesentery was thickened by fibrosis. Microscopic examination of tissue from a diverticulum showed that the mucosa was ulcerated and infiltrated with acute giant inflammatory cells The ulcerated area showed a very dense formation of fibrous tissue in its floor and walls and a cellular reaction involving lymphocytes, plasma cells and histiocytes The lymphocytes tended to be arranged in small collections Only an occasional polymorph was noted. Yeast like bodies were scattered throughout the lesion but were not related to the lymphoid collections they seemed to be completely absent in some areas but fairly numerous in others They stained a faint red with hematoxylin and eosin and with this stain were almost indistinguishable from the surrounding tissues. When stained by Mallory s eosin method for actinomyces, however they showed up clearly as homogeneous dark blue circular bodies most of them 7 to 8 μ in diameter. Sections from several parts of the lesion all showed the same picture The diagnosis was actinomycotic diverticuloma of the sigmoid colon The patient s course after operation was uneventful and she was discharged from the hospital on the 18th postoperative day After the laboratory established the diagnosis the patient was questioned to ascertain the source of her infection It was found that she had been in the woolen business for the preceding five years before associating herself with the woolen industry she had been in excellent health but soon afterward she noticed the abdominal symptoms

COMMENT

There are many varieties of actinomyces, some aerobic and some anaerobic The common type that grows on grasses and grains is seldom pathogenic Human beings, who are usually attacked by the anaerobic or microaerophilic form of actinomyces The aerobic form is frequently saprophytic and can easily be cultured. But the pathogenic variety is difficult to grow and is easily killed by drying The common pathogenic species—Actinomyces bovis of Wolff-Israel—is often resident in carious teeth but has never been found naturally growing outside the body The commonest mode of entry of the fungus into the body is through the lining of the alimentary canal[1] but the lungs, skin and possibly the female genital tract are occasional routes of entry Actinomycotic lesions of the colon usually involve the muscular and serosal coats of the colon, leaving an intact mucosa In the case reported, the external wall was extensively involved, the mucosa remained intact

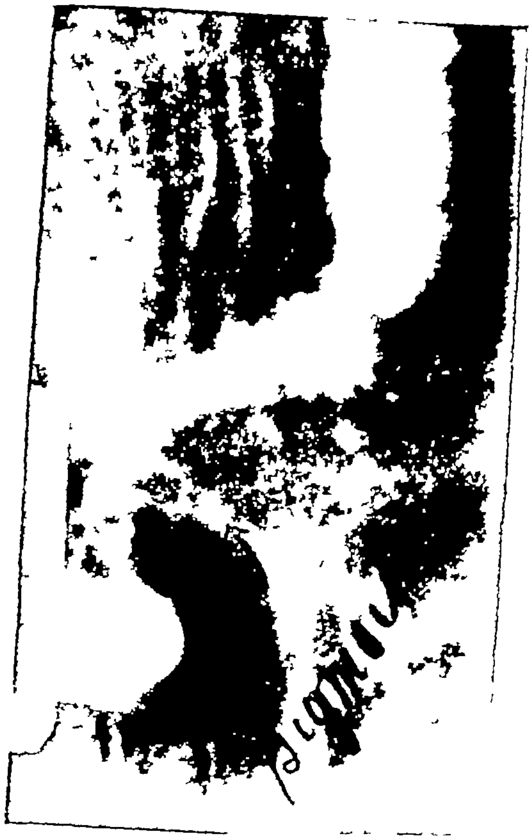

Fig. 2—Roentgenogram of the affected portion of the sigmoid The mucosal pattern is distorted but not destroyed A long diverticulum without a rounded extremity extends into the extrinsic mass

The evaluation of chemotherapeutic measures, particularly those using sulfonamide drugs and penicillin, is

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[3] Mallory F B, Pathological Technique A Practical Manual for Workers in Pathological Histology Including Directions for the Performance of Autopsies and for Microphotography Philadelphia W B Saunders Company 1938

difficult, and many years will probably elapse before an accurate appraisal can be made[4] Meleney[5] in a review of this subject points out some of the important factors involved in this difficulty, which include duration of the illness, the extent and location of the infection, surgical procedures and treatment, mixtures of organisms, and the problem of local and general immunity Despite the nonuniformity of these factors in cases reported, however, a survey of the literature leaves little doubt that a definite advance in therapy has been made with the addition of sulfonamide drugs and penicillin to the surgical armamentarium[6] This disease, which only a few years ago was reported as "uniformly fatal or nearly so," has been reduced to a condition that, although still serious, now offers considerable hope of recovery and good health to those affected[4]

3302 Pacific Ave

[4] Campbell D A, and Bradford, B, Jr Actinomycosis of the Thorax and Abdomen Arch Surg **57** 202 (Aug) 1948

[5] Meleney F L The Difficulty of Evaluating Drug Treatment in Surgical Infections, J A M A **124** 1021 (April 8) 1944

[6] Wangensteen, O A The Role of Surgery in the Treatment of Actinomycosis Ann Surg **104** 754 (Oct) 1936 Lyons, C, Owen, C R, and Ayers W B Sulfonamide Therapy in Actinomycotic Infections, Surgery **14** 99 (July) 1943 Walker, S M and Hamilton, J W The Treatment of Actinomycosis with Penicillin, Ann Surg **121** 373 (March) 1945

POSSIBLE FACTOR IN SUDDEN AND UNEXPECTED DEATH DURING INFANCY

David M Spain, M D
Victoria A Bradess, M D
and
Irving J Greenblatt, Ph D , Brooklyn, N Y

It has been estimated that each year in the United States several thousand young infants in apparently good health die suddenly and unexpectedly These deaths have been attributed by different observers to accidental mechanical suffocation, enlargement of the thymus, adrenal hormone imbalance, and various forms of infection such as interstitial pneumonitis or focal bronchopneumonia[1] Only a diagnosis of infection, particularly that of the upper and lower respiratory tracts, appears to have any validity in the vast majority of these cases However, careful investigation into the circumstances surrounding these cases and detailed gross and histological postmortem examination have as yet failed to adequately explain the suddenness of these deaths as well as the absence of any significant symptoms The usual history is that a healthy infant between 1½ and 3½ months of age has been put to bed in a crib or carriage and several hours later is found dead

In the past four years, we have had the opportunity of studying 52 consecutive instances of sudden and unexplained deaths in infants of this age group The only significant postmortem findings were those of occasional foci of inflammation, particularly in the upper and lower respiratory tract Less frequently there were inflammatory foci in other sites These areas of inflammation on occasion appeared similar to those seen in the histological response to infection produced experimentally in the nonimmune animal There were occasional colonies of bacteria or areas of necrosis present in the lungs and other organs and only a sparse surrounding inflammatory response, in which mononuclear cells often predominated (fig 1) The peak incidence of these deaths was during the winter and early spring months These are the months in which respiratory infections are most prevalent Thirty-six of the 52 cases occurred during this period, while the remaining 16 occurred during the late spring and summer months The age distribution (fig 2) reveals a peak incidence between 2 and 3 months Only one case occurred in infants under 1 month and only two in infants over 5 months Thirty-four cases occurred in male infants and 18 in female infants These figures are in general agreement with those reported by others

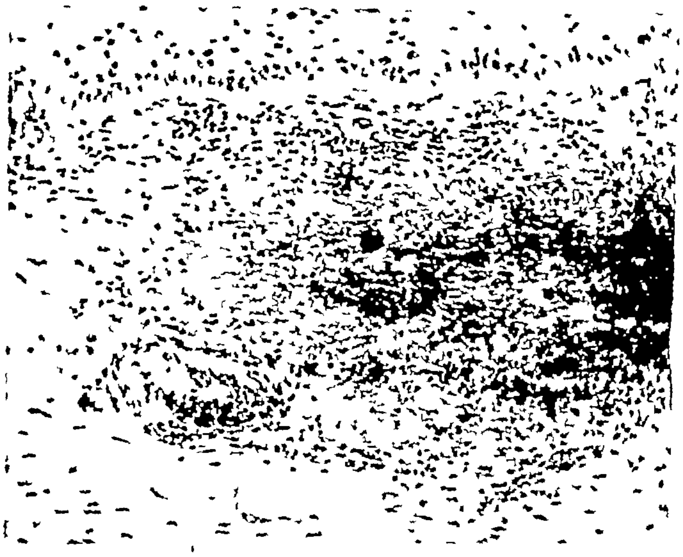

Fig 1 —Photomicrograph (hematoxylin and eosin stain) showing area of necrosis with scant surrounding inflammatory reaction on the larynx of an infant who died suddenly and unexpectedly

It is known that during the first few months of life an infant is dependent on the antibodies received during fetal life from its mother These antibodies usually disappear by the second or third month, and the infant begins his own synthesis of antibodies Although there is no direct parallel between antibody and serum gamma globulin levels, it has been demonstrated that the serum gamma globulin level is at a peak level at birth and declines rapidly to a low level at 2 and 3 months of age[2] The age between 2 and 3 months, therefore, is a critical and transitional period in regard to the antibody and immune mechanisms of the infant Because the period of most frequent incidence of deaths in these infants coincides with this period, because most of the cases occur during the time of the year when respiratory infections are prevalent, and because there are scattered foci of inflammation in the respiratory tract and in other sites that often resemble the response seen in a nonimmune animal, we decided to begin a study of the gamma glob-

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From the Department of Laboratories and the Messinger Research Laboratories of the Beth El Hospital, Brooklyn, and the Medical Examiner's Office of the Department of Laboratory and Research of Westchester County Valhalla, N Y

[1] Abramson H Accidental Mechanical Suffocation in Infants J Pediat **25** 404 1944 Werne, J Post Mortem Evidence of Acute Infection in Unexpected Death in Infancy abstracted Am J Path **18** 759 1942

[2] Moore, D H, DuPan, R M, and Buxton, C L An Electrophoretic Study of Maternal Fetal, and Infant Sera, Am J Obst & Gynec **57** 312, 1949

ulin levels in the postmortem serum of the patients that came to our attention

The gamma globulin levels in the postmortem serums of five infants have been determined Two infants served as controls The first, 6 weeks old, died of proved accidental mechanical suffocation, and the second, 11 weeks old, died of hydrocephalus Serum was obtained three and six hours after death, respectively, and the Longsworth-Schlieren scanning method was used In these two infants the gamma globulin levels were 600 mg per 100 cc and 590 mg per 100 cc respectively These are normal determinations for this age period The other three infants were 6, 9, and 5 weeks old and had been in apparently good health All were put to bed and found several hours later dead in their cribs There was no evidence of accidental mechanical suffocation The infants were normal at birth and gained the usual amount of weight, and at the time of postmortem examination they were well developed and well nourished The only significant findings at autopsy were some evidence of acute inflammation in the upper respiratory tract, as well as a few scant foci of inflammatory cells around the bronchioles Serum was obtained within six hours after death, and the gamma globulin levels were 150 mg , 183 mg , and 180 mg per 100 cc respectively These are regarded as definitely below normal even for this age period.

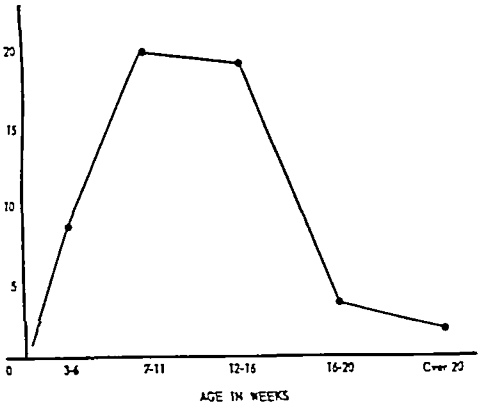

Fig. 2.—Age of infants in 52 instances of sudden, unexpected death.

It is therefore possible that an important factor in the inability of these infants to respond to an infection in the usual way may be dependent on a deficiency in antibodies as well as gamma globulin Although it is hazardous to speculate on the basis of the findings in a few cases, partial substantiation for this view is obtained from the reports of Bruton and of Janeway, Apt, and Gitlin on a condition described as agammaglobulinemia.[3] They reported on several children who did not respond favorably to the antibiotic treatment of infections It was found that these children had abnormally low serum gamma globulin levels The infection cleared after injections of gamma globulin

This report is presented so that others having access to similar cases of infant deaths will take steps to determine the serum gamma globulin levels If the above-described finding and thesis should be substantiated the routine injection of small amounts of gamma globulin in young infants might possibly prevent a substantial number of these sudden and unexpected deaths

SUMMARY

In three infants who died suddenly and unexpectedly, postmortem serum gamma globulin determinations were made and found to be exceptionally low Postmortem determinations in two control infants of the same age group showed normal gamma globulin levels It is suggested that a lowered antibody level or gamma globulin level or both may be an important factor in many of these sudden and unexpected deaths occurring during infancy

Linden Blvd and Rockaway Parkway (Dr Spain)

3 Bruton O C Agammaglobulinemia, Pediatrics 9 722, 1952. Janeway C A Apt, L, and Gitlin D Agammaglobulinemia, Tr A Am. Physicians 66 200 1953

NITROFURAZONE DERMATITIS FOLLOWING COITUS

Dr Chakko George, L R C P and S (Edinburgh)
London, England

Since the introduction of nitrofuran, derivatives as bacteriostatic agents, many cases of cutaneous sensitivity reactions to this group of drugs have been reported in the literature [1] Nitrofurazone (Furacin [5-nitro-2-furaldehyde semicarbazone]) is one member of this group that has been widely used during the last few years The following case is reported as being of particular interest because of the rather unusual mode of accidental contact to the drug

REPORT OF A CASE

A 32-year-old white man, a welder, was admitted to the University Hospitals, March 3 1952, with the chief complaint of reddening, itching, and swelling of the scrotum and penis Examination revealed fairly well demarcated areas of erythema confined to the inner thighs, the penis, scrotum, and pubis, the perianal areas the lower flanks, and both hands in an otherwise healthy person All the involved areas were edematous Match-head-sized vesicles red acuminate papules and a few yellow-topped pustules were scattered over the affiicted areas (fig. 1) The penile skin was swollen to double its normal size and the entire coronal margin (the patient had been circumcised) was studded with hemiglobular lentil-sized vesicles, some intact and others ruptured leaving raw denuded areas

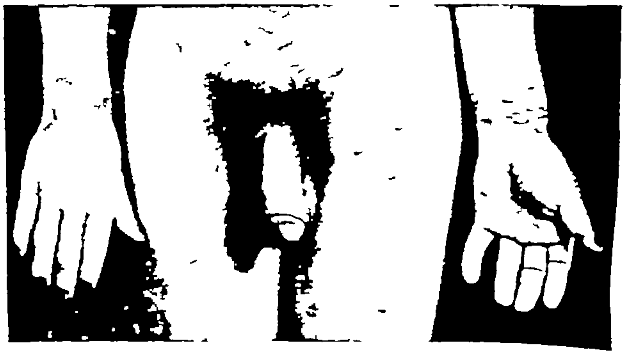

Fig 1 —Areas afflicted with nitrofurazone dermatitis.

The patient s wife was convalescing from an operation for repair of the perineal floor and three da s previously on medical

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D Harold N Cole gave perm[illegible] to report this case.

[1] Hill W R and F[illegible] W E D[illegible] F[illegible] Nitrofurazone A M A Arch D[illegible] & Syph [illegible] Richie I H and M[illegible] A C. Sens[illegible] J [illegible]

ment With evidence of widespread or distant metastases, amputation should not be considered

In this presentation one notes the onset of pain in the right shoulder, relieved by aspirin It was not until one year later that diagnostic attempts were made by x-ray and biopsy The lapse of one year between the onset of symptoms and the establishment of a diagnosis precluded success with any form of treatment that would have been successful in this patient It is doubtful that x-ray treatment should ever be used alone In this patient it was of no value

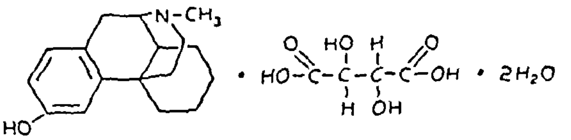
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies A copy of the rules on which the Council bases its action will be sent on application

R T Stormont, M D, *Secretary*

Levorphanol Tartrate —Levo-Dromoran Tartrate (Hoffmann-La-oche) —$C_1 H NO\ C_4H_6\ 2H\ O$ —M W 443 48 —*l*-3-Hydroxy-methylmorphinan tartrate dihydrate —The structural formula *levorphanol tartrate may be represented as follows*



Actions and Uses —Levorphanol tartrate, a potent, synthetic analgesic related chemically and pharmacologically to morphine, produces a similar intensity of analgesia in much smaller doses and seems to be somewhat longer-acting Available experimental evidence indicates that the toxicity of levorphanol roughly parallels its analgesic activity With corresponding analgesic doses, its margin of safety is approximately equal to that of morphine

Levorphanol tartrate is useful for the relief of severe pain and may be employed for the management of intractable pain caused by cancer and other tumors, severe trauma, biliary and renal colic, gangrene, and myocardial infarction It is also useful for preoperative medication and postoperative relief of pain

Levorphanol tartrate produces side-effects similar to those of morphine, except that it is less likely to cause constipation Pruritis or sweating occurs infrequently Nausea, emesias, and dizziness occur more commonly in ambulatory patients, as occurs with the use of other narcotic analgesics The contra-indications are the same as for morphine Because the drug exhibits an addiction liability similar to that of morphine, the same precautions should be observed as for other addicting analgesics

Dosage —Levorphanol tartrate is administered either orally or subcutaneously The recommended average adult dose is 2 to 3 mg Dosage may be subject to adjustment, in accordance with the age and weight of the patient, the severity of pain, and the development of tolerance As with other addicting analgesics, initial dosage should be as low as possible in the management of intractable pain to delay the development of tolerance

Tests and Standards —

The following tests and standards apply to the hydrated material unless otherwise specified

Physical Properties Levorphanol tartrate is a white, odorless bitter crystalline powder, m p 114-116° It is very slightly soluble in chloroform and ether The approximate amounts that dissolve at 25° in the following solvents to form 100 ml of solution are 0 9 gm *in alcohol and* 2 gm in ether Levorphanol tartrate is stable to light air, heat and moisture The pH of a 0 2% solution is 3 4-4 0

Identity Tests Dissolve about 10 mg of sodium molybdate in 10 ml of sulfuric acid Place about 1 mg of levorphanol tartrate *on a spot* plate and add 5 drops of the molybdate solution the solution turns blue *(distinction from methorphinan hydrobromide that turns greenish yellow)*

Add about 2 drops of 40% formaldehyde to 3 ml of sulfuric acid Place about 1 mg of levorphanol tartrate on a spot plate and add 5 drops of the *formaldehyde* solution the solution turns brownish yellow Dilute the solution with about 1 ml of water it turns greenish yellow

Suspend about 5 mg of levorphanol tartrate in 1% resorcinol in sulfuric acid and warm gently a red color develops *(presence of tartrate)*

The *specific rotation* $[\alpha]^{25}_D$ of a solution containing 0 75 gm of anhydrous levorphanol tartrate in 25 ml of water is −15 4 to −16 2°

A 0 006% alcoholic solution of levorphanol tartrate exhibits ultraviolet absorption maxima at about 220 and 282 mμ [specific absorbancy E(1% 1 cm), about *58] and a minimum* at about *245* mμ

Purity Tests Dry about 1 gm of levorphanol tartrate accurately weighed in a vacuum at 105° for 6 hours the loss in weight does not exceed 9%

Char an amount of *levorphanol tartrate, acurrately* weighed equivalent to about 0 5 gm of anhydrous levorphanol tartrate cool the residue add 1 ml of sulfuric acid heat cautiously until evolution of sulfur trioxide ceases, ignite cool, and weigh the amount of residue is negligible

Assay (Levorphanol) *Transfer to a 125 ml* separatory funnel an amount of levorphanol tartrate, *accurately weighed equivalent to about* 0 2 gm of anhydrous levorphanol tartrate dissolve it in 20 ml of water add 1 *gm* of sodium bicarbonate *and shake carefully Extract the liberated* base with eight 25 ml portions of a *1 3 chloroform-ether mixture* and combine the extracts *in a 250 ml separatory funnel Wash the extracts* with three 5 ml portions of water Reextract the wash solution with two 10 ml *portions* of chloroform-ether *adding these extracts to the* combined chloroform ether extracts Add exactly 10 ml of 0 1 *N* hydrochloric *acid to the extract shake thoroughly* for 2 minutes, and transfer the aqueous layer to a 125 ml Erlenmeyer flask Add two 5 ml *portions of water to the chloroform ether and without shaking* transfer the aqueous layer to the acid extract Wash the chloroform-ether with four 10 ml *portions* of water *combining the washings* with the acid extract Titrate the excess acid with 0 1 *N* sodium hydroxide using 2 *drops of methyl red* T S as an indicator Each milliliter of 0 1 *N* hydrochloric acid consumed is equivalent to 0 02574 gm of levorphanol and *0 04075 gm of anhydrous* levorphanol tartrate The amount of levorphanol is not less than 62 2 or more than 64 1%, equivalent to not less than *98 5* or *more than* 101 5%

Dosage Forms of Levorphanol Tartrate

Solutions *Physical Properties* The pH of the 0 2% solution is 3 9-4 7

Identity Tests In the case of solutions containing phenol, evaporate to *dryness on a steam bath an amount of solution* equivalent to 8 *mg* of levorphanol tartrate Add 3 ml of water, and again evaporate the solution to dryness Repeat the addition of water and evaporate twice more Transfer the residue to a 100 ml volumetric flask with the aid of alcohol and fill to the mark with alcohol The solution responds *to the* spectrophotometric identity test for the active ingredient in the monograph for levorphanol tartrate

In the case of solutions containing parabens extract an amount of solution equivalent to 8 mg of levorphanol tartrate with four *10 ml* portions of ether Separate the aqueous layer and evaporate *it to dryness* on a steam bath Transfer the residue to a 100 ml volumetric flask with the aid of alcohol, and fill to the mark with alcohol The solution responds to the spectrophotometric identity test for the active ingredient in the monograph for levorphanol tartrate

Assay (Levorphanol) Transfer to a 125 ml separatory funnel a volume of solution accurately measured equivalent to about 50 mg of anhydrous levorphanol tartrate Add 5 ml of 5% sodium bicarbonate, *and extract* the liberated base with six 20 ml portions of 1 3 *chloroform-ether* Wash the combined extracts with two 5 ml portions of saturated sodium chloride Add exactly 10 ml of 0 02 *N* hydrochloric acid *to the* extract shake thoroughly for 2 minutes and transfer the aqueous layer to a *125 ml Erlenmeyer flask Add two 5 ml* portions *of water to the* chloroform-ether and without shaking transfer the aqueous layer to the acid extract Wash the chloroform ether with four *5 ml* portions of water and combine the washings with *the acid* extract Titrate the excess acid with 0 02 *N* sodium hydroxide using 2 *drops* of *methyl red* T S as an indicator Each milliliter of 0 02 *N* hydrochloric *acid* consumed is equivalent to 0 008148 gm of anhydrous *levorphanol* tartrate The amount of anhydrous levorphanol tartrate is not less *than 93* or more than 107% of the labeled amount *calculated to the* anhydrous basis

Tablets *Identity Tests* Powder 10 tablets, and transfer the powder to a 250 ml Erlenmeyer flask Add 50 ml *of alcohol* shake for 15 minutes and filter Pipet into a 100 ml volumetric flask an amount of filtrate equivalent to *about 10 mg of levorphanol* tartrate and fill to the *mark* with alcohol The solution responds to the spectrophotometric *identity test for the* active ingredient in the monograph for levorphanol tartrate

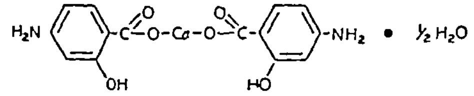
Assay (Levorphanol Tartrate) Weigh 20 tablets and powder them Transfer to a 100 ml volumetric flask an amount *of powder* accurately weighed equivalent to about 12 mg of *levorphanol tartrate* dihydrate (about 11 mg of anhydrous levorphanol tartrate) add 20 *ml* of diluted sulfuric acid and 50 ml of water and shake the flask for 15 minutes Fill to the mark with water and mix Centrifuge a portion of the mixture for 5 minutes at 2 000 rpm Transfer to a 50 ml glass-stoppered centrifuge tube labeled sample 10 ml of the clear supernatant liquid To a second centrifuge tube labeled 'standard add 10 ml of standard levorphanol tartrate solution (In a 1 000 ml volumetric flask dissolve 0 12 gm of levorphanol tartrate dihydrate-N N R accurately weighed in 200 ml of diluted sulfuric acid Dilute to the mark with water and mix Pipet 10 ml of the solution into a 100 ml volumetric flask dilute to the mark with water, and mix) To the third centrifuge tube add 10 ml of water To each tube add 5 ml of buffer (17 gm of potassium dihydrogen phosphate 105 ml of 1 *N* sodium hydroxide and enough water to make 500 ml) Shake the tubes gently Then add 5 ml of bromothymol blue (Grind in a small mortar 0 1 gm of bromothymol blue with 16 ml of 1 *N* sodium hydroxide Transfer the solution to a 400 ml beaker and dilute to about 200 ml with water Boil the solution for about 30 sec with constant stirring Cool and dilute to 250 ml Filter the solution if necessary) To each tube add 20 ml of benzene accurately measured Shake the tubes vigorously for about 2 minutes and centrifuge at 2 000 rpm for 2 minutes Without disturbing the aqueous layer transfer by means of a syringe at least 13 ml of each benzene layer to 50 ml Erlenmeyer flasks Pipet 10 ml of each of the benzene solutions into three 125 ml separatory funnels properly labeled To each separatory funnel add 40 ml of benzene and 20 ml of 0 02 *N* sodium hydroxide accurately measured Shake the funnels vigorously for 1 minute Separate the aqueous layers centrifuge at 2,000 rpm for 2 minutes and spectrophotometrically determine the absorbancies in 1 cm cells at 610 mμ using the solution of zero concentration as the blank. The weight of levorphanol tartrate dihydrate in milligrams per tablet = (absorbancy of sample × wt of standard in mg. × average wt of tablet in mg) ÷ (absorbancy of standard × wt. of sample in mg × 10) Each milligram of the dihydrate is equivalent to 0 9188 mg of anhydrous levorphanol tartrate The amount of anhydrous levorphanol tartrate is not less than 93 or more than 107% of the labeled amount calculated to the anhydrous basis

Hoffmann LaRoche, Inc, Nutley, N J

Solution Levo-Dromoran Tartrate 1 cc ampuls and 10 cc vials A solution containing 2 mg of levorphanol tartrate dihydrate in each cubic centimeter Ampul solutions are preserved with 0 18% methylparaben and 0 02% propylparaben, vials solutions are preserved with 0 5% phenol

Tablets Levo-Dromoran Tartrate 2 mg Each tablet contains 2 mg. of levorphanol tartrate dihydrate U S patent 2,524,855 U S trademark *540,115*

Calcium p Aminosalicylate—The structural formula for calcium *p*-aminosalicylate may be represented as follows



Actions and Uses—Calcium *p* aminosalicylate shares the actions and uses of *p*-aminosalicylic acid and sodium *p* aminosalicylate See New and Nonofficial Remedies under the monograph on *p* aminosalicylic acid Calcium *p* aminosalicylate has no established advantage over the sodium salt, except that it can be administered to patients on a sodium restricted diet Its therapeutic activity is considered equal to that of sodium *p*-aminosalicylate The incidence of gastric intolerance or other side-effects has not been shown conclusively to be less with the calcium than with the sodium salt

Dosage—Calcium *p* aminosalicylate should be administered orally, and the dosage should not be less than that usually recommended for the acid or for the sodium salt 12 to 15 gm daily, divided into not less than three equal doses of 4 to 5 gm each given every eight hours before or preferably between meals Theoretically, the dose of the hydrated calcium salt would be about 25% larger than the usual dose of the acid to provide an equivalent amount of the drug, whereas the hydrated sodium salt would require only a 15% larger dose than the acid However, a total daily dose of 15 gm of the sodium *p* aminosalicylate yields about 1 6 gm of sodium that makes the sodium salt unsuitable for *p*-aminosalicylic acid therapy in patients who are required to restrict sodium intake

Fine Chemicals Division, American Cyanamid Company, Princeton N J

Powder Calcium Para Aminosalicylate Bulk, for manufacturing or compounding use

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

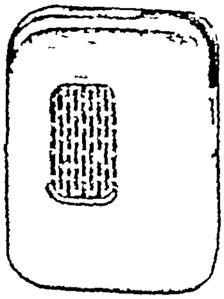
APPARATUS ACCEPTED

The following additional products have been accepted as conforming to the rules of the Council on Physical Medicine and Rehabilitation of the American Medical Association for inclusion in Apparatus Accepted A copy of the rules on which the Council bases its action will be sent on application

RALPH E DE FOREST, M D, *Secretary*

Unex Hearing Aid, Model TR-3D

Nichols and Clark, Inc, Hathorne, Mass



Unex Hearing Aid, Model TR-3D

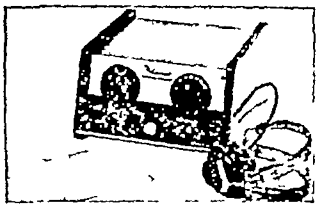
The Unex Hearing Aid, Model TR-3D, is a tubeless instrument that contains three transistors and uses one 1 25 volt cell, referred to as an "energy capsule" The body of the instrument measures 54 by 41 by 14 mm and weighs 37 3 gm The battery weighs 3 6 gm, the earphone 7 7 gm, and the receiver cord 2 gm, making the total weight 50 6 gm

The volume control is combined with the on off switch, there is no tone control The tone and power performance can be modified by choosing from eight possible receivers

Panacoustic Pure Tone Screening Audiometer, Model A-500

U S Recording Co, 1121 Vermont Ave, N W, Washington 5, D C

The Panacoustic Audiometer, Model A-500, is a pure tone screening audiometer It is intended to meet the need for a small desk top instrument to test a subject's pure tone hearing loss as a function of frequency within the accepted range for screening devices of this type The frequency selecting dial enables the operator to choose 500, 1,000, 2,000, 3,000, 4,000, or 6,000 cps The output dial is graduated to read directly in decibels of hearing loss, with detented steps of 5 db per step and a range from −10 to +70 db with respect to average normal threshold

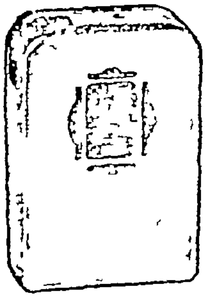


Panacoustic Pure Tone Screening Audiometer Model A 500

The instrument requires 60 cycle alternating current at 110 to 115 volts and draws 20 watts Unpacked it measures 27 (height) by 26 by 14 cm (10¾ by 10¼ by 5½ in) and weighs 5 kg (11 lb 3 oz) Packed for shipment it measures 40 by 33 by 19 cm (16½ by 13 by 7½ in) and weighs 8 2 kg (18¼ lb) The shipping weight includes a standard diagnostic air conduction receiver (earphone), dummy receiver, and a pad of blank audiogram charts The complete equipment is housed in a carrying case

Acousticon Hearing Aid, Model A-330

Dictograph Products Inc, 95-25 149th St, Jamaica 35, Long Island, N Y



Acousticon Hearing Aid Model A-330

The Acousticon Hearing Aid, Model A-330, is a tubeless instrument that contains three transistors Its power supply is a 1 25 volt mercury cell which weighs 4 gm The body of the instrument measures 63 by 44 by 20 mm and weighs 68 gm The earphone weighs 10 gm and the receiver cord 2 gm, making the total weight 84 gm

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MULTIPLE SCLEROSIS

Multiple sclerosis is one of the commonest organic diseases of the nervous system and is being recognized in the United States with ever-increasing frequency About 250,000 persons in this country suffer from this disease [1] It is characterized by central nervous system demyelinization the cause of which is unknown A vitamin or mineral deficiency, infection with a virus, a glandular disturbance, or an allergy have been suggested as the cause, but no conclusive evidence of any of these theories has yet been advanced It develops as an acute disease without warning in young adults and runs an intermittent course characterized by exacerbations at intervals of weeks, months, or years These recurrent attacks may last a few days or several months In some patients complete disability results, and in others the process becomes arrested [2]

Charcot's triad, consisting of scanning speech, nystagmus, and intention tremors, is of no practical diagnostic value because it is usually seen in patients with far-advanced disease and may never occur in some patients The early symptoms are extremely varied and depend on the portion of the nervous system involved Because of the remissions, many patients are considered neurotic in the early stages of the disease, but recurrence of weakness or paresthesia in one or more extremities, diplopia, or unilateral blurred vision, vertigo, changes in emotional balance, a spastic or ataxic gait, or loss of bladder control and possibly nystagmus, pallor in the temporal half of the optic disk, loss of abdominal reflexes, or a Babinski sign should lead to the correct diagnosis The managing physician should, however, maintain at all times a challenging attitude toward this diagnosis Once such a diagnosis has been made it is difficult for a physician seeing the patient for the first time at a later date to disavow the earlier diagnosis because a changing clinical picture is characteristic of the disease Although some observers have warned against the use of spinal puncture, pneumoencephalography, and myelography in these patients, most physicians who have had a wide experience with this disease advocate the use of these measures in order to rule out multiple sclerosis if possible Furthermore they believe that when properly performed these procedures will not harm the patient [3]

Because most patients with this disease live many years, the management of the disease offers a real challenge for the medical profession Many drugs have been used but with questionable success *Myanesin* (3-*o*-toxyl-1,2-propanediol) and d-tubocurarine in oil have proved disappointing and are neither safe nor dependable [1] in treating muscular spasticity, adenosine is helpful in treating some patients with urinary incontinence, and gonadotrophic hormones have been tried for patients with emotional instability If a patient has evidence of any allergy, it should be treated, but no definite evidence that multiple sclerosis is an allergic manifestation has yet been produced The aim of treatment is to mitigate the consequences of the disease This is a task for the general practitioner, but he should have the support of neurological, ophthalmologic, urologic, orthopedic, and physiotherapeutic consultants Since exacerbations may be brought on by excessive physical fatigue, emotional stress, trauma, infection, general anesthesia, and extremes of temperature, appropriate steps should be taken to prevent these influences [4]

Although no patient with multiple sclerosis should be told that nothing can be done for him, neither should he be told that his condition can be cured [1] Frank discussion with the patient will prevent his wasting time and money in a fruitless search for cure and will also allow him to make a better psychological adjustment to his disease, relieve him of the worry of uncertainty and the fear of the unknown, and result in his better cooperation in his treatment [5] Much aid in meeting the problems of managing this disease, especially in the matter of physical therapy and rehabilitation, may be obtained from the National Multiple Sclerosis Society in the form of brochures for physicians and for patients in various stages of the disease An attitude of cheerful enthusiasm on the part of the physician will be reflected in the patient's progress, and no physician should undertake to treat this disease with any other attitude

ENDOMETRIOSIS

Endometriosis is important because of the pain and disability it causes and because in many patients it causes sterility The incidence of reported cases is increasing, but whether this represents a real increase or is due to increased recognition of the condition is not clear [1] They are still conflicting views about its cause and treatment, and, although none of them satisfactorily explain the cause in all cases, the most popular theory is that some endometrial cells during menstruation flow back through the oviducts into the pelvic cavity Experiments on monkeys have established the fact that such cells are viable and are capable of producing endometriosis [1] This theory does not, however, explain the occurrence of similar lesions in more distant parts of the body According to another theory endometriosis arises from a metaplasia of the celomic epithelium[2] This theory best explains the lesions found at some distance from the uterus Since endometrial tissue has often been found in pelvic lymph nodes, some believe that viable endometrial cells may spread through the lymph channels Javert[3] found evidence of endometriosis in 6 5% of the pelvic nodes removed at laparotomy or autopsy in women, and, if the patient had a coexisting pelvic endometriosis, the lymph node involvement was 29% This theory, however, does not explain remote lesions

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[1] Wainerdi, H R The Management of Patients Who Have Multiple Sclerosis, M Ann District of Columbia 23 7-14 (Jan) 1954

[2] Allen, I M Disseminated Sclerosis, M J Australia 1 858-861 (June 13) 1953

[3] Wainerdi, H R Personal communication to the author

[4] Jewesbury, E C O On Disseminated Sclerosis, Med Illus 7 517-521 (July) 1953

[5] Tarlau, M The Attitude of the Patient Toward Multiple Sclerosis, New York J Med 54 680-682 (March 1) 1954

[1] TeLinde, R W , and Scott, R B Experimental Endometriosis, Am J Obst & Gynec 60 1147 1173 (Nov) 1950

Meigs[4] has attempted to correlate the occurrence of endometriosis with the modern tendency to postpone marriage and to infrequent childbearing In support of his theory he points out that endometriosis is relatively rare in women under 26 years of age and calls attention to a higher incidence of endometriosis in a series of consecutive admissions to private rooms compared with those to wards That the patients in private rooms married later and had fewer children, there can be no doubt, but Cavanagh[5] suggests that the group of ward patients was more heavily weighted with admissions for fibroids and pelvic inflammatory disease In a more carefully controlled series from the Sloane Hospital for Women he found no difference in the incidence of endometriosis in patients in private rooms and in wards Huffman's observations[2] revealed no definite correlation between the extent of endometriosis and the number of pregnancies per patient Siegler and Bisaccio[6] were also unable to confirm Meig's conclusions It would seem, therefore, that sterility is the result rather than the cause of endometriosis in these patients

In women in the childbearing period, endometriosis is associated with dysmenorrhea, menorrhagia, metrorrhagia, low abdominal pain, backache, and dyspareunia, but in women who have passed the menopause it is asymptomatic The diagnosis is important because the condition is often mistaken for cancer A shotty cul-de-sac is pathognomonic of endometriosis Tenderness of the cul-de-sac and adnexa and enlargement of the ovaries and uterus may also be found Huffman[2] urges that endometriosis be graded as are other tumors and has proposed four stages, which he describes Such a classification is useful in determining treatment. Other factors to be considered are the age of the patient and whether children are desired Estrogens and androgens have been used, but, although they may give some relief from symptoms, they are not without danger and when their administration is discontinued the symptoms return Surgical removal is the treatment of choice for those patients in whom treatment is required, and in young women who wish to have children the lesions should be dissected out and ovarian and tubal tissues preserved Presacral neurectomy is often included in the operative procedure to relieve severe dysmenorrhea[6] Radiation with x-rays or radium is used as a last resort for those in whom conservative treatment fails or recurrence of intestinal and bladder symptoms suggest further involvement[4] Frequently however recurrences require no treatment Siegler and Bisaccio observed no significant difference in the number of pregnancies resulting from conservative treatment palliative treatment or no treatment in women in the same age groups As suggested by the variety of theories as to the cause of endometriosis, different factors may be at work in different patients According to present indications, the treatment of these women should be highly individualized

NEW RECORD FOR TODAY'S HEALTH

With the October issue, *Today's Health* will reach a circulation of over 340,000 copies, which is the highest circulation figure in its 31 year history as *Hygeia* or under its present title A substantial part of this increase in circulation is due to the diligent efforts of the Woman's Auxiliary to the American Medical Association and their subscription projects at the national, state, and local county level. The Woman's Auxiliary has devoted a great deal of their program to the promotion of subscriptions, because they recognize that the magazine can fulfill its purpose only when it reaches the persons for whom it is written *Today's Health* is now found in the reception room of more than 103,000 physicians and 45,000 dentists throughout the United States and possessions These copies are seen by many thousands of patients every week.

The magazine is edited for the lay public and emphasizes their personal need for a family doctor and the community's need to suppress medical fraud and quackery The increase in circulation is helping the magazine to reach its goal of maximum usefulness to the medical profession. The Woman's Auxiliary is stressing the fact that *Today's Health* reliably discusses the personal and community health needs of the lay public and how to meet them adequately This same fact is being stressed by the nation's leading magazine subscription agencies, who have reported a marked increase in interest in the magazine during the past months Schools, colleges, woman's service groups, rural health groups, youth organizations, and business and industrial firms are continuing to make more use of the magazine in their health education programs A lowered subscription rate is available to these groups when they order 10 or more copies to be sent to one address, and the same low rate applies when 25 or more copies are ordered by one group to be sent to the individual home or office address The nation's railroads, airlines and steamship lines have asked for copies to be made available to them, and soon *Today's Health* will be found in the lounges of the country's leading passenger carriers With the increase in new readers, there has been a heartening increase in renewal orders, which confirms the wider acceptance of the magazine by the lay public and portends an even larger circulation in the future

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[2] Huffman J W External Endometriosis Am J Obs & Gynec 62 1243-1252 (Dec) 1951

[3] Javert C T The Spread of Benign and Malignant Endometrium in the Lymphatic System with a Note on Coexisting Vascular Involvement Am J Obst & Gynec 64 780-806 (Oct) 1952

[4] Meigs J V Endometriosis Etiologic Role of Marriage Age and Parity Conservative Treatment Obst & Gynec 2 46-53 (July) 1953

[5] Cavanagh W V Fertility in the Etiology of Endometriosis Am J Obst & Gynec 61 539-547 (March) 1951

[6] Siegler S L and Bisaccio J R Endometriosis Clinical Aspects and Therapeutic Considerations Am J Obst & Gynec 61 97-[illegible] (Jan) 1951

ORGANIZATION SECTION

CIVIL DEFENSE

Following is the second section of the third and last of a series of articles on medical civil defense plans that have been prepared for the state of Maine These plans are being published as samples for those states that have not as yet completed this phase of medical civil defense planning —ED

Plans for Special Weapons Defense Part III

Chemical Agents Defense Plan, Section 2

CHEMICAL WARFARE DECONTAMINATION PROCEDURES

Contamination by chemical warfare agents may vary greatly in nature Some of these agents are true gases under ordinary conditions and will drift with the wind until dispersed Most such agents, however, are liquids of varying degrees of volatility that may be spread by shell bursts, as a mist or aerosol by aircraft, or by the dropping of bombs filled with such agents These liquids will deposit on the ground and on objects such as shrubs, trees, and buildings and remain there for an indefinite period, depending on the nature of the particular contaminant

Self-Aid and First Aid Measures for Persons Contaminated with Chemical Agents

Physical Classification	Name	Symbol	Protection	Treatment	
				Self Aid	First Aid
Blister Gases	Mustard	H	Gas mask	EYES For all liquid blister gases Squeeze BAL ointment into lower eyelids, massage for 1 min then flush with water for 30 sec to 2 min If eyes cannot be opened rub BAL on lids until it can be squeezed into lower lids Note Eyeshields properly used, will prevent blister gas eye injuries SKIN For all liquid blister gases With cloth or absorbent wrapping of ointment blot all liquid from skin then discard absorbent Rub on ointment S 330 for 15 sec then remove (Reapply and remove for large splashes) Rub on BAL and leave for at least 5 min , then reapply BAL Wash well with soap and water as soon as possible Note This procedure may be modified by local authorities if contamination is positively known to be a single blister gas For H or HN alone, use S 330 for L alone, use BAL On skin already reddened use soap and water in preference to S 330 CAUTION Liquid gases vaporize from the skin, clothing, equipment, and other objects therefore turn face away and breathe as little as possible until the eyes and face are decontaminated and the gas mask donned Remove contaminated clothing and treat underlying skin Clothing must be decontaminated or discarded, so that vapors will not contaminate other men	1 Treat burns with sterile dry dressing 2 With injuries a Treat specific injury b Arrest hemorrhage c Treat shock if present d Decontaminate skin and clothing e Control pain
	Nitrogen Mustards	HN	Protective clothing		
	Lewisite	L	Protective ointment		
	Ethyldichlorarsine	ED	S 161 or S 330		
	Methyldichlorarsine	MD	Protective cover		
	Phenyldichlorarsine	Pd	Eyeshield		
	Mixed blister gases				
[illegible] g	Phosgene Diphosgene Chlorpicrin	CG DP PS	Gas mask	Immediately don gas mask No other self aid is necessary unless breathing becomes difficult In that event keep quiet and warm until given medical attention	1 Rest 2 Keep comfortably warm 3 Oxygen for anoxia
	Hydrocyanic acid	AC	Gas mask	Immediately don gas mask If conscious and breathing no further treatment is necessary	Systemic 1 Inhalation Amyl Nitrite 2 Artificial respiration
Nerve Poisons	Fluoroacetates Fluoalkylfluoroacetates Fluoroalcohols Fluorophosphates Dialkylamidofluorophosphates Sarin (Isopropyl ester of methane phosphoryl fluoride), Soman	G	Gas mask with special canister	Immediately don gas mask if a feeling of tightness or constriction occurs in the chest or if breathing is difficult, or if eyes of persons in the vicinity have very small pin point sized pupils Remove any liquid nerve gas on skin or clothing by blotting with absorbent material Scrub contaminated flesh with clean wet cloths and remove or cut away clothing If muscle twitching develops in contaminated areas use atropine ampins if available If breathing difficulties persist repeat atropine injections after 5 to 10 min A third injection may be used if needed in another 10 min , but no more	Mild Small doses atropine Severe 2 mg atropine intravenously to relieve symptoms If convulsions are not adequately controlled by atropine sulfate, they may be controlled by the intravenous or intramuscular injection of 2 5% thiopental sodium administered slowly until convulsions lessen to the point that they do not threaten life Positive pressure resuscitation by the Holger Neilson or by the hip roll prone pressure methods

As long as such a liquid remains in a given area, it will vaporize and contaminate the air Persons entering the area may suffer contamination by inhaling the vapor or by picking up the liquid chemical agent on flesh or clothing by contact with contaminated surfaces This will result in many casualties unless contaminated areas are delimited or decontaminated as rapidly as possible The effect of chemical warfare agents on the human system will vary greatly with the type of material involved In some cases only considerable discomfort, without serious after-effects, results In other cases serious disabilities are inevitable, leading to a large number of deaths unless vigorous medical treatment quickly follows administration of first aid It is not the purpose of this section to enlarge on this topic, which requires intensive treatment, for the moment, it must suffice to refer to the self-aid chart Personnel who carry out decontamination procedures should follow the directions that are given below These directions are of a general nature and might be subject to change in the event of an actual attack, depending on the type of chemical agent that is used In general, decontamination may be carried out by either removing or destroying the agent Inanimate objects and ground areas are usually best decontaminated by destroying the contaminating agent with other chemicals and, in some instances, by removing the resultant residues

Organization of Chemical Defense Decontamination Units —The following personnel is required per unit

Junior chemical officer (1)
Assistant chemical officer (2)
Decontaminators, spraymen, loaders, helpers (12)
Driver operator of decontamination equipment (3)

Such a unit can service an urban area with a population of 5,000 to 10,000 Units of four to eight persons may be more practicable when personnel or working space is limited Units of this complement will handle decontamination of any facility exposed to the action of chemical agents, radioactive material, or bacteriological agents, and may also act as triple-action units, serving at need as casualty decontamination groups or as first aid units in the handling of chemical or other special weapons casualties The personnel for this work should be accustomed to heavy work, and, since they will work in impermeable protective clothing part of the time, they should be in good physical condition

Materials required for decontamination units are as follows

	Required Per Unit
Equipment	
1. Decontaminating apparatus 1½ qt M2 *	7
2. Decontaminating apparatus 3 gal M1 *	9
3 Decontaminating apparatus power driven, M3A3 *	2
4 Shovels	6
5 Rakes	6
6 Brooms	6
7 Pails 8 qt	6
8 Drum 50 gal no head	4
9 Axes and picks	4
10 Scythe	3
Supplies (Quantities required depend on the area requiring decontamination)	
1. One of the following chlorine compounds Bleaching powder ($CaOCl_2$) Sodium hypochlorite H T H Perchloran Other commercial substances	
2. Sand ashes or sawdust	
3 Kerosene	
4 Danc solution M4 *	
5 Area marker signs	
6 Marker tape or rope	
Impermeable Protective Clothing (Butyl rubber coated)	
1 Suit protective impermeable one piece M3 *	20
2 Hood protective impermeable M3 *	20
3 Gloves protective impermeable pair M3 *	20
4 Boots rubber short heavy knee pair	20
5 Covers boot impermeable pair M1	20
6 Suit cooling two piece diaper cloth M1 *	20
7 Hood cover cooling M1 *	20
8 Mask protective M9A1 * or other approved type	20
Protective Accessories	
1. Protective ointment kit M5A1 * containing Protective ointment M5 * 3 tubes BAL eye ointment 1 tube Atropine tartrate injection 3 tubes	20
2. Protective dubbing for shoes or leather boots can	20
Impregnated Clothing (Optional)	
1. Protective hood	20
2. Coat	20
3 Trousers	20
4 Socks pair	20
5 Overshoes rubber high top pairs	20
6 Gloves pair	20
7 Tape masking wide roll	5

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* The letters and numerals refer to the armed forces numbers for these items and are included to facilitate matters if these items are made available to states civil defense agencies for purchase on the matching fund list

The impermeable clothing and accessories must be worn by the members of the decontamination units whenever persistent, liquid nerve gas has been identified or is suspected of being present in contaminated areas Impregnated clothing does not afford protection against the liquid nerve gases, but it does afford limited protection against liquid blister gases and biological and residual radiological contamination If liquid nerve gases have not been used, but a lesser degree of contamination with other chemical agents or biological agents exists the following equipment is permissible, it has the advantage of permitting members of the decontamination unit to work longer and in greater comfort than would be possible with the impermeable clothing

Impregnated clothing as listed above
Mask protective M9A1

When chemical and biological agents are absent and only radiological contamination is present members of the decontamination unit will need only the following items

White or olive drab coveralls
Canvas covers for shoes
White canvas gloves with long cuffs
Wide masking tape for making dust proof seal between bottoms of coverall sleeves and top of gloves and between bottoms of trouser legs and canvas shoe covers
Mask protective M9A1 *

Preliminary Duties of Decontamination Units—When chemical contamination is reported to the control center by a chemical warfare detection unit a decontamination unit should be dispatched to the designated area to immediately determine and mark off the contaminated area, if this has not already been done and establish the decontamination station upwind of the source of contamination in order to prevent pollution of the equipment and personnel by wind drift of the volatile chemical agents Other units involved, such as spray trucks and supply trucks carrying spray equipment, tools, and chemicals, should be arranged so as to attack the polluted area most efficiently and with minimal possibility of secondary contamination of these work units Decontamination personnel must protect themselves properly before entering the contaminated area, the protective clothing and equipment required will vary, depending on the type and characteristics of the chemical warfare agent used by the enemy In general, impermeable boots, suit, and gloves and a gas mask with a suitable canister will suffice for protection against both the persistent nerve and blister gases and the other, more conventional war gases Protective clothing should be examined frequently for possible contamination, as some types of such clothing are slowly penetrated by certain liquid agents Any visible contamination must be rapidly removed by blotting with absorbent cloths which are later burned with proper precautions The impermeable clothing may be scrubbed with slurry while the garments are being worn The slurry is washed off with water after a few minutes Testing of clothing for chemical agents should be done occasionally with detector units, especially if contamination is suspected If the contamination is heavy and cannot be removed as indicated above, the clothing must be removed carefully to avoid spreading of contamination and replaced by fresh protective clothing Detailed instructions for procedures for decontamination of clothing of various types may be found in Department of the Army Technical Manual 3-220, chapter 4, section 4

Specific Decontamination Procedures—The chemical agent that is most readily available and is highly effective in most, if not all, cases is bleaching powder, sometimes known as chloride of lime The chemical formula of this material is $CaOCl_2$ it is not actually chloride of lime but is partially a hypochlorite of lime In its place one may also use sodium hypochlorite, commercial bleaching solution or commercial substances such as H T H or Perchloron, which also furnish available chlorine The available chlorine of such compounds destroys the chemical agents by oxidation Dilution of such materials should be in the same proportion per 30% available chlorine as for the usual 30 to 35% available chlorine bleaching powder Such sources of available chlorine must not be directly applied to the contaminated areas as a dry solid or chemical reaction may proceed so rapidly as to produce flame and heat The heat will cause much volatilization of the chemical agent, endangering persons who might be in otherwise safe areas adjacent to the contamination

Decontamination of Roadways, Paths, and Bridges 1 If a spray truck or hand spraying equipment is available, heavily contaminated sections should be thoroughly sprayed with a mixture of equal parts of water and bleaching powder after which the entire area may be copiously washed down with water from a spray truck or hose 2 If such equipment is not available, a mixture of bleaching powder and dirt should be spread with shovels and rakes so as to cover the contaminated area When the usual commercial bleaching powder having about 35% available chlorine is used one part of bleach should be thoroughly mixed with three parts of soil or sand before such application to prevent evolution of excessive heat This procedure is preferable to the use of a water slurry described above if the surface being treated is loose and porous and will absorb much of the chemical agent Spading of loose ground is also advisable to mix the bleach more thoroughly In such manual application of a mixture of dirt and bleach personnel must remain upwind of the treated areas to avoid possible drafts of volatile material due to the evolution of heat as decontamination proceeds If possible, such application of the solid mixture may be carried out from a truck After this type of decontamination procedure tests must be made from time to time with a detection unit and further treatment carried out if needed 3 If no bleaching powder is available copious washing with water may be used to remove the agent from some surfaces Usually the water even if hot, will not thoroughly destroy the chemical agent by hydrolysis residual contamination must therefore be guarded against In some cases it may be preferable to cover the contaminated areas with about 3 in. (7 62 cm) of earth, sand, ashes, or sawdust and then wet down this covering This is only a temporary protection, and chemical action should later be used

Decontamination of Grass and Underbrush This is best accomplished by burning over such areas in dry periods Due precautions must first be taken to insure absence of persons in downwind areas where poisonous vapors may be carried

Decontamination of Equipment and Tools 1 Wooden equipment and tools may be scrubbed with bleach solution and then thoroughly rinsed with hot water and soap 2 Metal equipment should first be washed by dipping it into gasoline or kerosene or by swabbing with rags saturated with the material The hands of the operator must be adequately protected with impermeable gloves in such cases and the rags and liquid burned immediately after use, with proper precautions to prevent contamination of persons who may be downwind of the fire After such treatment, the metal objects should be washed with bleach solution, permitting contact for only a few minutes Unpainted metal surfaces will become severely corroded if bleach solution or slurry is left in contact with them for longer than an hour A final washing with soap and hot water must then be made, the object thoroughly dried, and unpainted surfaces oiled 3 More decontamination procedures and instructions can be found in Department of the Army Technical Manual 3-220, entitled "Decontamination"

Decontamination of Clothing 1 If contamination of clothing is suspected, it should be immediately removed and thoroughly steamed for several hours A large, covered can, such as a garbage can, is fitted with a false bottom of wood or similar rigid material, 6 to 8 in (15 2 to 20 3 cm) of water are poured into the bottom of the can, the false bottom inserted, and garments placed on it The water is heated to boiling and steaming continued for two to eight hours, depending on the contamination, with the can closed If contamination is still detected after such treatment, the process is repeated until contamination is absent Immersion in hot water is also suitable if sufficient water is available 2 Treatment with boiling water is not suitable for lewisite contamination, as a poisonous residue is left in the clothing 3 Contaminated shoes may be shuffled in a mixture of sand and bleach to remove contaminant that has not penetrated deeply into the leather When the leather has been penetrated, it is unlikely that contamination can be adequately removed, the shoes should be considered unsafe and destroyed 4 In the case of grossly contaminated clothing and shoes, the safest recourse would probably be burning in the open, with the usual precautions An incinerator with a chimney that provides a good draft should also be used If burning cannot be carried out, the articles should be buried in the ground to a depth of at least 6 to 8 in (15 2 to 20 3 cm) and the site suitably marked as contaminated with war gas

Decontamination of Detection Apparatus Thorough decontamination or disposal of apparatus and equipment used in the examination of contaminated air and materials is essential, not only from the standpoint of safety of detection personnel but also to avoid, in subsequent tests, the false positive reactions that might otherwise be obtained from residual traces of war gases in the detection apparatus Hot alcoholic potash is suitable for the destruction of most gases, but other reagents are more convenient in some circumstances The nerve gases and lewisite are decomposed rapidly by cold aqueous alkali On glassware, mustard and nitrogen mustard gas is best destroyed by nitric acid, on rubber tubing, metal forceps, and other, similar articles, by immersion in boiling water for one-half hour A hot aqueous solution of sodium sulphite will destroy chlorpicrin

Protection of Water and Food from Contamination To prevent contamination, water and food should be kept in gas-tight containers such as sealed cans and tightly stoppered bottles or in storage rooms sealed against gas In the absence of the proper type of cans or bottles, food may be carefully wrapped with several layers of cellophane or similarly impervious plastic materials If actual contamination of the can, bottle, or food wrapper occurs, such contamination should be removed by swabbing the container with bleach solution and then washing with water The food wrapper should be immediately removed, if intact, and properly disposed of

Decontamination of Persons—Procedures follow for treating persons affected or contaminated by liquid nerve and blister gases

Liquid Nerve Gases Persons who are injured badly or poisoned severely with nerve gas may be unable to administer self-aid Such persons will require assistance from other available personnel in the area in putting on gas masks, administration of atropine, and decontamination In general, persons contaminated with persistent liquid nerve gas should be decontaminated as follows 1 Liquid contamination of the skin must be removed immediately, as the gas is quickly absorbed in lethal amounts through uninjured skin The liquid should be blotted on cloth or other absorbent and discarded with care, then the contaminated skin area should be swabbed with cotton or cloth pledgets that are well wetted with a suitable alkaline fluid, which is more effective than plain water Any one of the following fluids should be satisfactory

Slurry of 1 part of bleach in 8 parts of water
2% solution of sodium hydroxide
5 to 10% solution of ammonium hydroxide
5 to 10% solution of sodium carbonate

When none of the above alkaline preparations is available, the contaminated skin should be washed with soap and water 2 Clothing contaminated with liquid nerve gas must be removed as quickly as possible 3 The casualties must be removed from the contaminated area as soon as possible

Liquid Blister Gases Immediate removal of liquid blister gases from the exposed skin by blotting with absorbent material, followed by suitable skin decontamination, must be done if chemical casualties are to be reduced to a minimum Prompt action is absolutely essential Adequate skin decontamination within the first minute after the liquid vesicant comes in contact with the exposed skin is always successful No method of decontamination will prevent blister formation if the liquid chemical agent has been in contact with hot, sweaty skin for three minutes or with cool, dry skin for five minutes Decontamination should be carried out as long as any liquid blister gas is visible on the exposed skin Specific self-aid procedures to be used in event of contamination with the more probable of the war gases have been listed in the table above In general, persons who are contaminated with the liquid blister gases should 1 Deal with liquid contamination of the eyes immediately, as every second counts Open the BAL eye ointment tube, pull the lower lid down, and squeeze BAL eye ointment into the lower lid Close the eyelid and gently rub the eye for about a minute to spread the ointment around inside the lid and over the eyeball Irrigate the eye with water for one half to two minutes Decontaminate the skin around the eye and eyelashes with BAL eye ointment, and wipe off immediately Protective ointment M-5 is never used in or immediately around the eyes This decontamination procedure is effective for mustard gas if done within a few seconds, but after two minutes it is of little value If BAL eye ointment is not immediately available, the eyes should be immediately washed out with copious amounts of water Soap and water may be used, if available, to wash liquid blister gases from the eyelids and lashes 2 Remove liquid blister gas from the exposed skin as soon as possible after eye contamination has been treated, for here, again, time is of paramount importance Blot free liquid blister gas from the skin and discard the absorbent material Break the tip off a tube of protective ointment M-5, if available, and apply ointment freely to the contaminated area Then remove as much as can be removed easily with a fresh, clean cloth, apply another coat of ointment and let it remain If the contamination is discovered after reddening of the skin has already begun, wash the area with soap and water only, as the M 5 ointment is then of little value and will further irritate the skin If protective ointment M-5 is not available, swab the contaminated skin with cotton or cloth pads wet, whenever possible, with one of the following

Slurry of 1 part bleaching powder and 3 parts water
5 to 10% solution of sodium carbonate
5 to 10% solution of ammonium hydroxide

Finally, wash the exposed skin areas thoroughly with soap and water, using a shower whenever one is available The used water should be drained away as well as possible to isolated areas, and decontamination of this wash water may also be advisable under some circumstances 3 Cut away and discard contaminated hair and clothing Decontaminate the underlying scalp or skin with protective ointment M-5, if available, or with soap and water

Procedures with Contaminated Casualties—If human casualties have already resulted from an attack with war gases hospital treatment may be required Thorough decontamination must be done before such patients can be safely admitted to a medical installation otherwise, equipment medical personnel, and other patients would soon be secondarily contaminated with the chemical agent Therefore, a mobile personnel decontamination unit of the type shown on charts 3 and 4 in part 1 of this series, manned by a regular decontamination unit of 12 to 18 persons, should be dispatched promptly to the attacked area if a suitable water supply is available, if a suitable water supply is not available for use, the gas casualties should be transported as quickly as possible in open trucks to the nearest personnel decontamination unit in operation

Ambulatory Patients Contaminated, ambulatory gas casualties should be directed out of the polluted area, segregated on the downwind side of an adjacent mobile unit, and, from there, carefully moved into the undressing section All outer clothing is removed in the open and placed in metal garbage cans that are provided for this contaminated clothing Then the patients proceed up the ramp into the body of the first truck, where undergarments are removed and placed in covered garbage cans, enter the portable shower suspended between the two trucks, remaining for 15 to 30 seconds, or until the chemical agent is completely removed from the body, and enter the clean dressing area in the second truck Medical treatment and dressings for minor chemical injuries are provided by the nurse or attendant in charge of the first aid station inside the clean truck Ambulatory patients are provided with clean clothing and allowed to leave the decontamination unit on the upwind side Those requiring hospital care are transported by bus or ambulance to a designated hospital installation, those less seriously injured are sent home or to a designated billeting area

Nonambulatory Patients Each seriously injured nonambulatory gas casualty found in the contaminated area should be fitted with a gas mask, given emergency first aid treatment, placed on a gas casualty stretcher' (a stretcher covered with wire mesh for easy decontamination) and transported to the decontamination center or to a designated collecting point by specially trained litter bearer teams wearing suitable gas masks and impermeable or impregnated clothing Open trucks will be required if it is necessary to transport these patients a great distance to a personnel decontamination center, in such cases, first aid should include as complete a cleansing from the chemical agent and as complete replacement of contaminated clothing as possible before the patients are loaded into the trucks Specially trained decontamination unit attendants equipped with suitable gas masks and impermeable gloves, raincoats, heavy impermeable aprons and hip boots should remove all clothing from the nonambulatory patients and use a water spray from garden hoses equipped with the standard adjustable nozzle to wash the chemical warfare agent from the patient and the stretcher on which the patient remains until the decontamination procedure has been satisfactorily accomplished Stretcher racks will be needed to support the gas casualty stretchers during this process Then other attendants place the patient on a clean sheet on another stretcher, cover him with a suitable number of blankets to provide warmth, and arrange for prompt transfer to the nearest hospital installation for medical treatment

Decontamination of Litters When possible, regular litters should have impermeable covers fitted over them This impermeable litter cover remains with the patient when he is removed from the litter, a clean cover, when available, is placed on the litter so that it may be reused without first being decontaminated If the litter is not covered, it soon becomes contaminated and must be so treated Decontamination of the standard litter requires that it be disassembled and the parts decontaminated as follows 1 Litter canvas should be decontaminated by placing it in boiling water for one-half to one hour Two ounces of washing soda may be added to each 10 gal of water 2 The wooden poles should be covered with a 30% aqueous slurry of bleach for one fourth to one full day The wood should then be swabbed dry and left exposed to the air in a warm place 3 Unpainted metal parts should be wiped dry with rags and then washed with soap and water Danc may be applied to the surfaces if a blister gas was the contaminant. The clean metal should be allowed to stand in the open air for several hours Decontamination of the special wire mesh stretcher or of a standard canvas litter that cannot be disassembled can be accomplished in the following manner 1 The litter may be sprayed several times with Danc, allowing each application to dry, when blister gases are the contaminating agents 2 The litter should be sprayed with a hot solution of 2 oz. of sodium carbonate per 10 gal of water The litter should be exposed to the air as long as feasible after treatment before it is used again 3 The wire mesh stretcher can be immersed in a large tank of the solution used for decontamination and left for the required length of time Then it can be removed, rinsed off first with soapy water and then with clean water, and allowed to dry in the open air

Prevention of Secondary Contamination In the execution of the above procedures, precautions must be continually observed to prevent contact of decontaminated persons with contaminated persons and objects This can be achieved by proper segregation of contaminated persons, careful disposal of waste articles in closely sealed containers until burning can be carried out, and reclothing of decontaminated persons with fresh apparel Water from the showers for decontamination must be drained away to a segregated area downwind from the decontamination unit If this waste water is appreciably contaminated, a suitable amount of bleach should be added as it drains away from the showers

TRAINING OF DECONTAMINATION UNITS

Supplies Required

Field Manuals (Armed Forces Publications)

1 FM 21-40 Defense Against CBR (For Unit Officers)
2 FM 21-41 Defense Against CBR (Soldiers Manual)

Training Manuals (Armed Forces Publications) *

1 TM 3-215 Military Chemistry and Chemical Warfare Agents
2. TM 3-220 Decontamination Against CBR
3 TM 3-240 Field Behavior of Chemical Agents
4 TM 3-350 Military Shelters
5 TM 3-290 Individual Protective and Detection Equipment
6 TM 8-285 Treatment of Chemical Warfare Casualties
7 TM 10-[illegible] Mobile Laundry and Decontamination Procedures

World War II Civil Defense Publications

1 OCD 2-19 Identification of Chemical Agents
2. OCD Protection Against Gas
3. CWS 1 Principles of Decontamination
4 CWS 2 Training Guide—Chemical Warfare
5 WDCPS [illegible] 2 Detection of Small Quantities of War Gases ([illegible])
6. WDCPS [illegible] Safety in Laboratory Experiments with War Gases

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* Now available or being [illegible] in very [illegible]

Training Guides

- 1 Gas Identification
- 2 Use of Gas Mask
- 3 Use of Protective Clothing
- 4 Problems in Decontamination
- 5 Chemical First Aid and the Handling of Gas Casualties
- 6 Use of Chemical Neutralizers (Decont)

Outline of Course of Instruction for Units

- 1 War gases
  - *a* Historical background
  - *b* Nature of chemical warfare
  - *c* Classification of chemical agents
  - *d* Persistence
  - *e* Tactical value
  - *f* Physiological reactions
  - *g* Methods of use
  - *h* Characteristics of chemical clouds
  - *i* Action and movement of chemical clouds (wind)
  - *j* Effect of weather on chemical agents and their use
  - *k* Tactical results of chemical agent action
  - *l* Possibilities of future use
- 2 First aid for gas casualties
  - *a* General considerations
  - *b* Lung irritants
  - *c* Blister gases
  - *d* Nerve gases
  - *e* Tear gases
  - *f* Irritant smokes
  - *g* Systemic poisons
  - *h* Incendiaries
  - *i* Screening smokes
  - *j* Use of decontamination stations
  - *k* Recommended contents of chemical first aid chest
- 3 Identification of chemical warfare agents
  - *a* Purpose
  - *b* Importance of reconnaissance
  - *c* Determinations of the presence of war gas
  - *d* Chemical methods
  - *e* Sampling
  - *f* Tests for specific gases
  - *g* Portable laboratory
  - *h* Reporting
  - *i* Decontamination problems
  - *j* Use and care of protective clothing
  - *k* Personnel decontamination
- 4 Decontamination instruction and training
  - *a* Definition
  - *b* Limitations
  - *c* Principles of decontamination
    - (1) Chemical action—substitution, oxidation, and hydrolysis
    - (2) Physical or mechanical action
  - *d* Substances used in decontamination
  - *e* Types of decontamination apparatus
  - *f* Use and care of protective clothing
  - *g* Gas mask drill
  - *h* Protective clothing drill
  - *i* Decontamination of area (problem)
  - *j* Decontamination of vehicles (problem)
  - *k* Squad decontamination after field duty
  - *l* Critique

EVENING FILM PROGRAM AT MIAMI MEETING

A special program of motion pictures will be shown Tuesday evening, Nov 30, at the McAllister Hotel with discussions of the films by the authors Dr William B Rawls, New York, will make a premiere showing of a film "Differential Diagnosis of the Arthritides (Rheumatoid, Osteo, and Gouty)" Another film will be "Congenital Malformations of the Heart" by Dr Robert Rushmer, Seattle, presenting the embryology, origin, and functional significance of congenital malformations of the heart that produce cyanosis Plans are under way for other outstanding films, with the authors personally present to answer questions The evening program at the McAllister Hotel will supplement the regular motion picture program, which will be shown continuously each day at the Dinner Key Auditorium

LIBRARY

This is one of a series of brief statements explaining the work of various departments of the American Medical Association —Ed

The library was established in 1903, primarily as a service for American Medical Association members It serves the physician as an instrument of postgraduate medical education, providing him with a lending library of current medical periodical literature and material on particular medical subjects A major responsibility of the library is the compiling and editing of the Quarterly Cumulative Index Medicus It also prepares an index for each volume of The Journal The library specializes in current periodical literature on medical subjects About 1,600 periodicals, including state and county medical journals as well as foreign journals and periodicals in all branches of medicine and related fields, are received regularly and held for 10 years These unbound periodicals are available on loan to members of the A M A free of charge Individual subscribers to the scientific journals of the A M A also are eligible to borrow periodicals but are charged a fee of 15 cents in stamps per journal Only three periodicals may be borrowed at one time, and periodicals may be kept for five days Requests should be addressed to Library, American Medical Association About 900 periodical loan requests are received each month Short lists of references can be obtained from the library, but the library cannot compile extensive bibliographies or handle detailed research requests

An Association member or an individual subscriber to an A M A scientific publication may write for information on a particular medical subject From a collection of over 240,000 pamphlets, reprints, and periodical tear sheets, individual loan packages are made up In an emergency a borrower may specify that his request be specially handled and his package sent first class, airmail, or special delivery, but in this case, the borrower pays for the special mailing charges A maximum of 14 to 16 articles, four of which may be journals, are sent and may be retained for 10 days Foreign periodicals are not included unless specifically requested The package library service is free to A M A members Individual subscribers to A M A scientific publications may use this service but are charged 50 cents per package Two weeks must generally be allowed for filling requests The library fills about 175 package requests each month This service is especially useful to members in rural areas where there are no large medical libraries

The Quarterly Cumulative Index Medicus compiled by the library staff provides a ready reference index to medical periodical literature and books currently published in the world It is an invaluable aid to busy practitioners, specialists, teachers, editors, writers, students, and libraries because it gives in convenient form references to pertinent information in current medical books and periodicals It is published in two sections, one index is devoted to books, the other to periodical literature The book section contains a list of current publications alphabetized as to authors, followed by a subject classification of the same material The periodical index covers about 1,000 periodicals, listed in each volume It furnishes a compilation of articles from important medical journals, arranged like a dictionary with authors and subjects in one alphabet The exact bibliographic reference is given under the author, with titles in the original language, while titles under subjects are in English The index now appears in two volumes a year and is cloth bound The annual subscription rates are $20 in the United States and $22 in Canada and foreign countries

MEDICAL NEWS

ARKANSAS

Society News—Newly elected officers of the Arkansas Radiological Society include Dr George C Burton, El Dorado, president, Dr Edwin F Gray, Little Rock, vice president, and Dr Joseph A Norton, Little Rock, secretary treasurer

Appoint Professor of Medicine.—Dr Richard V Ebert, professor of medicine at Northwestern University Medical School and chief of the medical service at the Veterans Administration Research Hospital in Chicago, has been appointed professor and head of the department of medicine of the University of Arkansas School of Medicine, Little Rock Dr James T Wortham has been acting head of the department since the resignation of Dr Benjamin B Wells in the summer of 1953 Dr Ebert is a member of the editorial board, *Journal of Clinical Investigation* He served in the Army Medical Corps during World War II, most of his tour of duty being spent in the European theater

CALIFORNIA

Proctor Lecture on Ophthalmology.—Dr Ludwig von Sallmann, director of research in ophthalmology, Columbia University College of Physicians and Surgeons, New York, will give the ninth Francis I Proctor lecture on ophthalmology Sept 30 at the Morrison Auditorium, Golden Gate Park, San Francisco The subject of his address will be "Responses of Intraocular and Blood Pressure to Electric Stimulation of the Diencephalon "

Dr Smyth Resigns as Dean.—Dr Francis Scott Smyth has resigned as dean of the University of California School of Medicine, San Francisco, but will continue as professor of pediatrics and will also retain a number of other posts in the field of medical education In regretfully accepting the resignation, president Robert G Sproul gave Dr Smyth much of the credit for anticipating the growing needs of medical education in California, for shaping the modern medical center now rising on the San Francisco campus, and for helping to establish the medical center on the Los Angeles campus Before coming to the school of medicine as instructor in pediatrics in 1925, Dr Smyth was affiliated with the Boston Children's Hospital, New York Nursery and Child's Hospital, and the St. Louis Children s Hospital He was promoted to the full professorship and chairmanship of the department of pediatrics in 1932 Dr Smyth will continue in his post on President Eisenhower s Board of Foreign Scholarships, on the committee on international relations of the Association of American Medical Colleges, and on the editorial board of the *A M A American Journal of Diseases of Children*

CONNECTICUT

Course on Pulmonary Disease—Yale University School of Medicine, New Haven, announces a special postgraduate course for practicing physicians, Management of Chronic Pulmonary Disease," a series of eight weekly teaching conferences When possible, case material and demonstrations of diagnostic and therapeutic techniques will be presented The series is arranged to cover in a related sequence the problems of chronic pulmonary disease as encountered by the practicing physician Sessions will be held on Thursdays, 2 30 to 5 p m, at Farnam Auditorium Yale New Haven Medical Center, beginning Oct. 7 Advance registration is required Registration fee and tuition will be $40 for the series Program and registration form may be obtained from the Assistant Dean of Postgraduate Medical Education Yale University School of Medicine, 333 Cedar St., New Haven

GEORGIA

Heart Association Meeting in Savannah.—The Georgia Heart Association will hold its annual meeting and scientific sessions at the General Oglethorpe Hotel in Savannah, Sept. 24 and 25 Speakers at the scientific sessions include

J N Morris London England Coronary Heart Disease—New Diseases for Old Coronary Heart Disease—In Search of Clues
Willis J Potts Chicago Management of Noncyanotic Congenital Heart Disease Management of Cyanotic Congenital Heart Disease
George E Burch New Orleans An Evaluation of the Vectorcardiogram for Clinical Use Clinical Aspects of Venous Pressure Measurements
Thomas P Findley New Orleans Some Homeostatic Functions of the Kidney

These scientific sessions are approved by the Georgia Academy of General Practice for postgraduate hours Attendance is open to all physicians There is no registration fee

ILLINOIS

Hospital News—A reunion of interns and residents from St. Francis Hospital, Evanston, will be held Sept 22 under the chairmanship of Dr Lorne W Mason The morning session will be devoted to ward walks and surgery observation and the afternoon session to the presentation of scientific papers

Meeting of Anesthesiologists.—The Illinois Society of Anesthesiologists will meet Sept. 21, 8 p m, in the Veterans Administration Research Hospital (333 E Huron St., Chicago, auditorium, 4th floor, east wing) Dr Torsten Gordh, assistant professor and chief anesthetist at Karolinska sjukhuset, University Clinic of Stockholm, Sweden, will present "Problems in Anesthesia in Sweden "

Commission for Handicapped Children—The Governor s Conference on Exceptional Children will be held in Peoria Sept. 24 under the sponsorship of the Illinois Commission for Handicapped Children The conference is open to all persons concerned with physically or mentally handicapped children, parents, professional workers, and interested citizens There is no registration fee The session will include workshops, with focus on prevention-planning for handicapped young persons and sectional meetings on the work of public health in preventing handicapping conditions in children and on the prevention of emotional scars—the role of social service and the use of healthy group experience to prevent maladjustment Inquiries may be directed to the Commission at 160 N LaSalle St, Chicago 1

Chicago

Hospital News—As part of its 50th anniversary celebration the Mothers Aid of Chicago Lying in Hospital will have a luncheon and fashion show on Sept 22 at the Morrison Hotel at which a check for $10 000 will be presented to the hospital The money is part of the $300 000 pledge that the Mothers Aid is making to the hospital as an anniversary gift

Professors Appointed at Northwestern—The following promotions to the rank of full professor have been announced at Northwestern University Medical School Dr Ronald R Greene Evanston, obstetrics and gynecology Dr Robert E. Stone nutrition and metabolism and Dr Willis J Potts surgery Dr Greene who joined the faculty in 1937 will occupy the newly established Anna Latham professorship He is senior attending physician in obstetrics and gynecology at Wesley Memorial Hospital Dr Stone who is one of the staff of Northwestern s nutrition clinic at the Jefferson Hillman Hospital Birmingham Ala., joined the faculty there in 1949 previously having taught at the University of North Carolina School of Medicine Chapel Hill Before joining Northwestern s faculty in 1946 Dr Potts taught at Rush Medical College and at the University of Illinois College of Medicine He is now surgeon in-chief at Children s Memorial Hospital Chicago

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Physicians are invited to send to this department items of news of general interest for example those relating to society activities new hospitals, education and public health Programs should be received at least three weeks before the date of meeting

IOWA

Memorial Scholarships—Dr Anna Bartsch Dunne, Washington D C, has established scholarships at the State University of Iowa, Iowa City, in memory of her parents, to be known as the Henry and Anna Bartsch Endowment, for an annual medical scholarship and an annual medical internship for women These scholarships, available to residents of Iowa, are similar to the Anna Bartsch Endowment, established several years ago in memory of Dr Dunne's mother at George Washington University in Washington D C

General Practice Meeting in Des Moines—The Iowa Academy of General Practice will hold its annual meeting at the Hotel Savery, Des Moines, Sept 22 and 23 Wednesday morning Drs James M Stickney and Talbert Cooper, Rochester, Minn, will present a symposium on anemia which will be followed by a question and answer period In the afternoon Dr Cooper will discuss 'Treatment of Hodgkin's Disease and Lymphoblastoma" and Dr Stickney "Treatment of Leukemia" A reception and cocktail hour will precede buffet dinner at 7 p m, during which there will be dedication of one lecture at each annual meeting to the late Dr Ernest E Shaw Thursday morning Dr Willard M Allen, St Louis, will speak on congenital malformation of the urogenital system, after which Dr Francis D Murphy, Milwaukee will present "Management of Hypertension with Special Reference to Newer Methods of Treatment" Dr Murphy will deliver the Dr Ernest E Shaw lecture, "Acute Renal Insufficiency, Including Acute Toxic Nephrosis," after the 12 15 luncheon, which will be addressed by Countess Maria Pulaski, who will talk about "Experiences as a Spy for Stalin" The sessions will end with presentation of "Cesarean Section—Is an Incidence of 5% Justifiable?" by Dr Allen The registration fee for nonmembers is $5, no fee for members

KENTUCKY

State Medical Meeting in Louisville—The J W Thompson Memorial meeting of the Kentucky State Medical Association will be held in the Columbia Auditorium, Louisville, Sept 21 to 23, under the presidency of Dr J Duffy Hancock, Louisville The sessions will open at 9 30 a m Tuesday with a symposium on physical examination, for which Dr Garnett J Sweeney, Liberty, will serve as moderator Dr Robert S Dyer, Louisville, will deliver the oration in medicine, "Cardiac Pain," at 12 noon Dr Benton B Holt, Ashland, will moderate a biopsy panel at 4 p m The oration in surgery, "Surgery of Trauma," will be presented at 11 a m Wednesday by Dr John E Haynes, Madisonville, after which the president's luncheon will be held at the Brown Hotel, where Dr Nicholas P Dallis, Toledo, Ohio, creator of the illustrated feature, "Rex Morgan, M D," will speak about "Our Life with Rex Morgan" The following specialty groups will hold their scientific meetings simultaneously during that time Kentucky Society of Anesthesiologists, Kentucky Obstetrical and Gynecological Society, Kentucky Psychiatric Association, Southeastern Surgical Congress, and the Kentucky chapters of the American College of Chest Physicians, American Academy of General Practice, American Academy of Pediatrics, and American College of Physicians The guest out-of-state speakers will make presentations during these meetings Their first presentations during the general scientific sessions include

Surgical Treatment of Stenotic Valvular Diseases Thomas J O'Neill, Philadelphia
Why the Urinary Antiseptics Fail, William Bromme, Detroit
Obstetric Misconceptions John L Parks Washington, D C
Psychiatry for the General Practitioner James H Wall, White Plains N Y
Treatment of Hyperthyroidism E Perry McCullagh Cleveland
Immunization in Infancy and Childhood John C Peterson Milwaukee
Low Back Pain and Its Related Conditions—Particularly the Lumbar Disc, Milton C Cobey Washington D C
Recommended Expansion of Interests in Anesthesiology, Curtiss B Hickcox Hartford Conn
Diagnosis and Treatment of Diseases of the Breast, Philip Thorek Chicago

The president's address will be on Wednesday, 11 a m The sessions will conclude with a symposium on interpretation of roentgenograms Thursday, 4 p m, for which Dr Robert M Coleman, Hopkinsville, will be moderator The women's auxiliary will meet simultaneously The K S M A golf tournament will be held at the Audubon Country Club Physicians and their guests may participate in play Monday, Tuesday, Wednesday, or Thursday, but only the first day of play of any member will count in the contest for tournament prizes

MAINE

Clinical Session in Portland—The Maine Medical Association will hold its fall clinical session at the Eastland Hotel, Portland, Sept 24 and 25 Included on the program will be the following speakers, sponsored by the Maine Cancer Society Drs Sidney Farber, Joe V Meigs, and Richard H Overholt, Boston, Dr Thomas J Anglem, Brookline, Mass, and Drs Gordon P McNeer and Cushman D Haagensen, New York The session will open with a dinner meeting Friday at 6 30 p m and close with a dinner meeting Saturday evening A special feature will be a series of round-table conferences during the luncheon Saturday Saturday will be devoted to papers by the above speakers and others, including Dr Edward B Benedict, Boston The Maine Trudeau Society will sponsor a speaker for the Saturday afternoon session, and there will be a meeting of the Maine Trauma Committee of the American College of Surgeons on Saturday, with speakers to be announced The women's auxiliary will meet during the clinical session

NEW YORK

Course on Glaucoma—A course on glaucoma with particular emphasis on gonioscopy and study of the anterior angle will be given at the Brooklyn Eye and Ear Hospital, Nov 15 to 17, with instruction in the use of the goniolens Material from the glaucoma clinic will be used Registration is limited to six ophthalmologists Application and the fee of $40 may be addressed to Dr Daniel Kravitz, Brooklyn Eye and Ear Hospital, 29 Greene Ave, Brooklyn 38

New York City

Korean Medal Awarded Dr Rusk—On Aug 2 at a dinner at the Hotel Waldorf-Astoria given by the American-Korean Foundation in honor of Dr Syngman Rhee, president, Republic of Korea, Dr Rhee presented Dr Howard A Rusk, president of the foundation, with the national medal of the Republic of Korea

Dr Golden Goes to California—After 32 years with Presbyterian Hospital, Dr Ross Golden will retire as director of the hospital's radiological service and as executive officer of the department of radiology of Columbia University College of Physicians and Surgeons Dr Golden will move to California, where he has been appointed visiting professor of radiology at the new medical school of the University of California at Los Angeles First director of the radiological service when it was formed July 1, 1935, Dr Golden is also the college's first professor of radiology As a testimonial, Columbia University is sponsoring the Ross Golden lectureship, to which more than 400 radiologists and persons in allied fields have contributed

OHIO

General Practitioners Meet in Columbus—The fourth annual scientific assembly of the Ohio Academy of General Practice will be held Sept 22 and 23 in the Deshler-Hilton Hotel, Columbus A cordial invitation is extended to all members and friends of the medical profession The following presentations have been scheduled

Public Relations in General Practice, Richard C. Miller Dayton.
Medical Problems of the Athlete John W Wilce, Columbus
Obstetrics in General Practice Abe Kuhr, Dayton
Tuberculosis and the General Physician I Phillips Frohman Washington, D C
The Patient with a Headache, Howard D Fabing Cincinnati
Poliomyelitis Immunization, S R. Robbins Cleveland
Multiple Sclerosis and Progressive Muscular Dystrophy Dwight M Palmer Columbus
Medical Education Stanley E Dorst, Cincinnati
The General Physician and the Hospital Frank C Sutton Dayton
The Human Side of Medicine Leo H Bartemeier Detroit
Newer Therapeutic Methods in Dermatology, Roy L Kile, Cincinnati
Therapeutic Nuggets Oscar F Rosenow Columbus
Narcotic Enforcement Mr Ross B Ellis Detroit.
Hearing Impairment in Children Charles E Kinney Cleveland
Cervical Disc Shoulder, Arm Hand Syndrome Winchell M Craig Rochester, Minn

PENNSYLVANIA

Memorial to Dr Dixon—A memorial plaque to Dr Samuel G Dixon, first commissioner of health for the Commonwealth of Pennsylvania, was unveiled in the Capitol Building in Harrisburg Aug 19 Dr Walter F Donaldson, Pittsburgh, who succeeded Dr Dixon as president of the Medical Society of the State of Pennsylvania when the latter died in 1918, made the presentation address Legislation necessary to have the memorial was passed by the Senate and House of Representatives in 1953 The Medical Society of the State of Pennsylvania, instrumental in the creation of the department of health for the commonwealth, cooperated in the plan The cost of the memorial has been provided by voluntary contributions

Philadelphia

Meeting of Proctologists—Members of the medical profession are invited to the first fall meeting of the Philadelphia Proctologic Society on Sept. 23, 8 30 p m, in the headquarters of the Philadelphia County Medical Society (21st and Spruce St.), where a panel meeting will be conducted by the American Board of Proctology Participating physicians will include Walter A Fansler, Minneapolis, George H Thiele, Kansas City, Mo Stuart T Ross, Hempstead, N Y, J Edwin Alford, Buffalo, Garnet W Ault, Washington, D C, Harry E Bacon, Philadelphia, Louis A Buie and Raymond J Jackman, Rochester, Minn, A W Martin Marino, Brooklyn, Louis E Moon, Omaha, Hyrum R Reichmann, Salt Lake City, Jack G Kerr and Robert J Rowe, Dallas, Texas, and Robert A Scarborough, San Francisco

RHODE ISLAND

Annual Registration of Physicians—The Rhode Island State Department of Health announces that the division of professional regulation on Sept. 1 began the annual registration of all physicians licensed to practice either medicine or osteopathy in the state This annual registration is required by a law enacted by the last session of the General Assembly As application forms have been mailed to all Rhode Island licensed physicians for whom current addresses were available, any physician who failed to receive such a form should contact the division Licentiates who have moved in or out of the state without notifying the division are urged to send the current address at once The amended law provides that all medical and osteopathic physicians must register their license certificates with the division of professional regulation on or before Nov 1 of each year by completing the official registration form and paying the fee of $1 Registrations filed after Nov 1 must be accompanied by a $3 fee. The act permits a physician who does not intend to practice in Rhode Island during any year to request in writing that his or her name be placed on an inactive list, in which case no renewal fee is required as long as the physician remains inactive A provision is made in the law for a $25 fine for any person who violates it by failing to register

TENNESSEE

University News—The University of Tennessee Medical Units Memphis, recently presented a program in emergency surgery and acute injuries that was attended by 20 physicians from Arkansas, Kentucky, Tennessee Missouri, Alabama Illinois and Ohio The course included surgical cases of interest at John Gaston Hospital, teaching facility of the college of medicine lectures on recent concepts of surgery, and films demonstrating surgical techniques

Pediatric Seminar—The annual seminar of Le Bonheur Childrens Hospital will be held Sept. 22 and 23 Dr Waldo E Nelson, professor of pediatrics Temple University School of Medicine Philadelphia and Dr Orvar Swenson surgeon in chief, Boston Floating Hospital will be guest lecturers The former will present Acute Respiratory Tract Disturbances in Infancy and Childhood" and Modern Treatment of Tuberculosis in Children" and the latter "The Diagnosis and Treatment of Anomalies of the Gastrointestinal Tract in Children" and "Surgical Emergencies of the Newborn" Dr Nelson will give clinical case presentations from 10 10 to 11 10 a. m on both days and Dr Swenson will present clinical cases from 3 50 to 5 p m.

WASHINGTON

State Medical Meeting in Spokane—The Washington State Medical Association will hold its 65th annual convention at the Davenport Hotel, Spokane, Sept. 19 to 22. Out-of state speakers and their first presentations include

- Edgar V Allen, Rochester Minn. Treatment of Essential Hypertension
- Harry A Oberhelman, Chicago Surgical Problems in Infancy and Childhood
- Donald G Tollefson Los Angeles Medical and Surgical Treatment of Endometriosis
- Ralph K. Ghormley Rochester Minn. Backache—Etiology and Treatment of Backache and Sciatic Pain

On Wednesday at 11 30 a m at a public relations luncheon 'The Personal, Ethical and Professional Obligations of the Physician will be discussed by Dr Louis J Regan Los Angeles and "Public Relations" by Mr Leo Brown, A M A Public Relations Director The annual banquet and dance will be held Tuesday evening. A golf tournament on Monday at the Spokane Country Club and a fishing derby on Lake Pend Oreille have been scheduled A series of motion pictures produced in Washington State, showing various surgical and medical procedures, will be presented Monday, 1 30 to 4 30 p m

WEST VIRGINIA

Meetings for General Practitioners—The West Virginia Academy of General Practice will hold a regional meeting at the Stonewall Jackson Hotel Clarksburg, on the afternoon of Sept 19 Presentations will include 'Obesity" by Dr Guy F Hollifield, Charlottesville, Va., and Male Hypogonadism" by Dr Harry F Klinefelter, Baltimore A panel discussion will follow the presentation of the last paper on the program An all-day regional meeting is scheduled for Parkersburg, Oct. 10 The program, which will be sponsored by Lederle Laboratories, will be a symposium on office procedures by the general practitioner

Personal.—Dr John C Condry, Charleston, was elected president of the Charleston Executive Club at a meeting held in Charleston early in June Three other Charleston physicians, Peter A A. Haley, Howard A Swart and Pat A Tuckwiller, were elected members of the board of directors——Drs Athey R Lutz, Parkersburg and Paul P Warden Grafton, have been appointed to represent the West Virginia State Medical Association on the board of the new state camp for medically handicapped children——Drs W P Bittinger, Summerlee, and Doff D Daniel, Beckley, have been reappointed by Governor Marland as members of the medical licensing board for the term ending June 30, 1959, both had been appointed members of the board in 1949 after its creation by the legislature early that year——Dr John H Murry, Jenkinjones, has been named by the governor as a member of the state board of education for the term ending June 30 1963 Dr Murry, who has engaged in general practice in McDowell County since 1939, served as treasurer of the McDowell County medical society during 1950 and 1951——Dr Ellery T Drake Williamson, secretary of the Mingo County Medical Society, has accepted a residency in surgery at Christ Hospital in Cincinnati Dr Andrew H Henderson Jr, Williamson has been named secretary treasurer of Mingo County Medical Society to succeed Dr Drake

WYOMING

Crippled Childrens Conferences—Crippled childrens conferences will be held Sept. 24 8 30 a. m at Rock Springs in the basement of Memorial Hospital of Sweetwater County and in Kemmerer Sept. 25 at 8 30 a m in the Burgoon School at Diamondville These conferences are being held under the auspices of the Wyoming Department of Public Health and crippled children under the age of 21 are eligible to attend Parents of children who have not previously attended one of these conferences are requested to contact their family physician first or to write to the Division of Crippled Children Department of Public Health Cheyenne, Wyo., so that an estimate of how many will attend can be obtained Dr Gordon C Whiston Casper will be the orthopedist and Dr Paul W Emerson Cheyenne pediatric consultant.

GENERAL

Industrial Health Conference—The Portland (Ore) Chamber of Commerce, in cooperation with the Oregon State Medical Society, the Multnomah County Medical Society, and other agencies interested in the health of industrial workers, will sponsor the first annual Pacific Northwest Conference on Industrial Health, Sept 20 and 21, at the Hotel Multnomah in Portland Dr William J Sittner, Portland, Ore , is chairman, committee on industrial health of the Oregon State Medical Society, Dr Kenneth C Brown, Portland, Ore , chairman of the Multnomah County Society's committee, and Dr Frank Perlman, Portland, Ore , chairman of the conference

Van Meter Prize Award—The American Goiter Association again offers the Van Meter prize award of $300 and two honorable mentions for the best essays submitted on original work related to the thyroid gland The award will be made at the annual meeting of the association in Oklahoma City, April 28 to 30, 1955, if essays of sufficient merit are presented in competition The competing essays may cover either clinical or research investigations, should not exceed 3,000 words, and must be in English, and a typewritten double-spaced copy in duplicate must be sent to the secretary, Dr John C McClintock, 149½ Washington Ave , Albany, N Y , not later than Jan 15, 1955 A place will be reserved on the program of the annual meeting for presentation of the prize award essay by the author

Multiple Sclerosis Heredity Study—Dr Harold R Wainerdi, New York, medical director, National Multiple Sclerosis Society, reports that about 35 pairs of twins from the United States and Canada responded to the recent appeal for identical twins afflicted with multiple sclerosis (THE JOURNAL, July 24, 1954, page 1174) As a result, preliminary verification for research into the possible hereditary and environmental causes of the crippling disease is now under way The society plans to commence its research project as soon as sufficient data on the volunteer twins have been amassed and examples of twins have been selected to meet the requirements of the proposed study Data will be sifted and corroborated to make sure that (1) the twins are identical and (2) one, or both, has multiple sclerosis For purposes of the planned research, the "ideal" twins would be those sets in which one member has multiple sclerosis and the other has not Both would be studied to try to determine factors that may have been responsible for the disease in the afflicted twin The society's appeal for identical twins is continuing Volunteers are asked to contact the National Multiple Sclerosis Society, 270 Park Ave , New York 17

Annual Meeting of Roentgen Ray Society—The 55th annual meeting of the American Roentgen Ray Society will be held at the Shoreham Hotel, Washington, D C , Sept 21 to 24 After the address of welcome by Dr Preston A McClendon, president, Medical Society of the District of Columbia, Tuesday at 8 30 a m , Dr Joshua C Dickinson, Tampa, Fla , will be installed as president and will deliver his inaugural address Tuesday at 8 30 p m Dr Dickinson will present a medal to Dr Edward L Jenkinson, Chicago, who will deliver the Caldwell lecture, "Pyloric Antrum of the Stomach " The following symposiums have been scheduled

Carcinoma of the Lung, Merrill C Sosman, Boston moderator
Blood Dyscrasias, Lymphoma Leukemia Group, H Dabney Kerr Iowa City, moderator
Uses of Radioactive Isotopes in Medical Diagnosis and Research, Edith H Quimby, Sc D New York moderator
Neonatal Respiratory Distress Syndromes, Edward B D Neuhauser, Boston moderator
Inflammatory Lesions of Gastrointestinal Tract, Fred J Hodges, Ann Arbor, Mich , moderator

Cocktails at 7 p m Thursday will precede the annual banquet and the presentation of scientific awards The annual golf tournament for the Willis F Manges trophy will be held Monday at the Manor Country Club and will be followed by the golf dinner

American Medical Writers' Association—The American Medical Writers' Association will hold its 11th annual meeting Sept 24 at the Hotel Sherman, Chicago Dr Jacob E Reisch, Springfield, Ill , president of the association, will open the symposium and panel discussion, "Collegiate Education in Medical Journalism and Writing," for which Dr Richard M Hewitt, Rochester, Minn , will serve as moderator I W Cole, M S , Urbana, Ill , and Earl F English, Ph D , and Dr Roscoe L Pullen, Columbia, Mo , will speak on the new medical journalism and writing program at the universities of Illinois and Missouri Panel discussion will follow presentation of "Medical Journalism Scholarship Fund and a Traveling Lectureship for the American Medical Writers' Association" by Dr Harold Swanberg, Quincy, Ill In the afternoon there will be a symposium and panel discussion on medical writing, with Dr Clayton G Loosli, Chicago, as moderator and Drs I Phillips Frohman, Washington, D C , Sidney W Scorse, Joplin, Mo , Waltman Walters, Rochester, Minn , H Ernest MacDermot, Montreal, Canada, Alexander B Gutman, New York, Harry A Oberhelman, Chicago, and Russell L Cecil, New York, as collaborators A fellowship hour at 7 p m , will precede the dinner, at which awards will be presented and Dr Jonathan Forman, Columbus, Ohio, will discuss "Newer Concept of Disease (Curative Versus Creative Medicine) "

Mississippi Valley Medical Society—The Mississippi Valley Medical Society will hold its 19th annual meeting at the Hotel Sherman, Chicago, Sept 22 to 24, under the presidency of Dr Norris J Heckel, Chicago The program will include panel discussions on hypertension, obstetrics and gynecology, peptic ulcers, endocrinology, and diseases of the heart and blood vessels An informal evening fellowship hour, banquet, and entertainment have been scheduled for Thursday, when the speakers will be Arch Ward, Chicago, sports editor, *Chicago Tribune*, Dr Arkell M Vaughn, Chicago, president, Illinois State Medical Society, Dr Harold E Petersen, St Joseph, Mo , president, Missouri State Medical Association, and Dr Lonnie A Coffin, Farmington, Iowa, president-elect, Iowa State Medical Society A feature of the meeting will be the nationwide closed circuit telecast, arranged by the American College of Physicians, in which a symposium on management of hypertension will be presented This telecast will be shown at both the Sheraton Hotel and the Hotel Sherman Thursday, from 5 to 6 p m The society invites all doctors of medicine to attend its Thursday afternoon and evening program, for which there will be no registration fee Dr Warren H Cole, Chicago, will speak on acute gallbladder diseases at 2 p m and Dr Waltman Walters, Rochester, Minn , on errors in diagnosis and treatment of biliary tract lesions at 2 30 p m , after which a panel on peptic ulcer will be presented

Southwestern Surgical Congress—The Southwestern Surgical Congress will convene for its 6th annual meeting Sept 20 to 22 at the Skirvin Hotel, Oklahoma City Dr Philip B Price, Salt Lake City, will deliver the president's address Tuesday at 3 p m Panel discussions will be held daily from 2 to 3 p m , as follows Monday, "Abdominal Anomalies of Childhood," Dr John M Waugh, Rochester, Minn , moderator, Tuesday, "Thromboembolic Phenomena," Dr Alton Ochsner, New Orleans, moderator, and Wednesday, "Urological Indications for Pelvic Surgery," Dr Zeph J R Hollenbeck, Columbus, Ohio, moderator A one hour motion picture presentation will be offered by the department of surgery of each of the following medical schools in the congress area

Baylor University College of Medicine, Houston, Texas Surgical Considerations of Disease of the Aorta
University of Oklahoma School of Medicine, Oklahoma City Inguinal Hernia—Anatomical Considerations, Statistical Analysis and Surgical Technique
Southwestern Medical School of the University of Texas Dallas Effects of Various Shock States and Their Treatment on Pulmonary Function, Hepatic Function, Renal Function

Twenty-seven scientific papers and case reports will be presented by members and member-sponsored speakers Speakers from previous sessions will participate in a question and answer period after the luncheon each day There will be a registration fee of $10 for nonmember physicians only, with the following exceptions residents, interns, military personnel, and fellows of the Southeastern Surgical Congress No registration fee will be charged fellows of the congress, ladies, and program participants

Railway Surgeons Meeting in Sun Valley—The 51st annual meeting of the Western Association of Railway Surgeons will convene Sept 23 to 25 at the Lodge, Sun Valley, Idaho At 9 a m Thursday Dr W Joseph McMartin, Omaha, will deliver the president s address, after which Dr Joseph F Gross, Omaha, will discuss "Diagnosis and Treatment of Painful Shoulder" and Dr Donald R Pratt San Francisco, will give an illustrated lecture, 'Treatment of Mass Injuries to the Hand " A social hour will precede the banquet, 7 p m, at which Dr McMartin will serve as toastmaster and Mr Arthur Stoddard, Omaha, president, Union Pacific Railroad, will be guest speaker The Friday program will open at 9 15 a m with discussion of newer concepts of shock by Dr Curtis E Smith, San Francisco, and Dr George A Collett, Elko Nev, followed by an illustrated talk on malignant lesions of the skin by Dr Warren A Bowersox, St Louis, and "Use of Tantalum Mesh in Hernia Repair," with motion pictures, by Dr Chester C Guy, Chicago After presentation of 'Acute Medical Emergencies' by Drs R Emmet Allen and William E Trezise, San Francisco, K A Carney, Chicago, will have as his topic Claims, Settlements, Lawsuits, Etc" At 9 30 a m Saturday, 'Radiological Diagnosis of Ulcerative Colitis" will be presented by Drs Francis L Simonds, John H Brush, and G Prentiss McArdle, Omaha Dr Bradford Simmons, San Francisco, and Dr Earl A Connolly, Omaha, will deliver Gastric Resection for Peptic Ulcerations—Report on *500 Cases ' The sessions will close with* "Peptic Ulcer—Diagnosis and Management" by Dr Claude P Callaway, San Francisco

Prevalence of Poliomyelitis—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States and its territories and possessions in the weeks ended as indicated

Area	Aug 21,1954 Paralytic Type	 Total Cases Reported	Aug 22, 1953 Total
New England States			
Maine	10	21	40
New Hampshire		9	6
Vermont	1	4	6
Massachusetts	21	67	31
Rhode Island		4	18
Connecticut	3	8	20
Middle Atlantic States			
New York	39	103	175
New Jersey	28	47	59
Pennsylvania		72	62
East North Central States			
Ohio	28	156	207
Indiana	24	47	44
Illinois	75	132	195
Michigan	70	159	212
Wisconsin	6	35	49
West North Central States			
Minnesota	24	53	193
Iowa	31	72	64
Missouri	17	40	35
North Dakota		11	14
South Dakota		7	12
Nebraska	17	36	13
Kansas	6	44	33
South Atlantic States			
Delaware	1	1	4
Maryland	8	9	41
District of Columbia	3	6	3
Virginia	15	30	64
West Virginia	9	16	27
North Carolina	24	57	53
South Carolina	4	13	13
Georgia	20	48	15
Florida	14	56	12
East South Central States			
Kentucky	25	47	13
Tennessee	4	22	29
Alabama	11	17	10
Mississippi	9	25	13
West South Central States			
Arkansas	13	17	17
Louisiana	18	31	16
Oklahoma	5	30	29
Texas	51	1[illegible]9	65
Mountain States			
Montana	1	6	15
Idaho		[illegible]	3
Wyoming	2	15	[illegible]
Colorado	8	23	15
New Mexico	1	[illegible]	5
Arizona	3	[illegible]	[illegible]3
Utah		22	[illegible]
Nevada		[illegible]	4
Pacific States			
Washington	6	16	12
Oregon	10	18	10
California	159	[illegible]	1[illegible]
Territories and Possessions			
Alaska	[illegible]	19	
Hawaii		3	
Puerto Rico			
Total	[illegible]	[illegible]	[illegible]

CORRECTION

Penicillin in Prophylaxis of Recurrent Rheumatic Fever.—In table 2, page 1467, in THE JOURNAL of Aug 21, 1954, under the column entitled 'Initially High" the figure at the bottom of this column should be 1 instead of 33

MEETINGS

AMERICAN MEDICAL ASSOCIATION Dr George F Lull, 535 North Dearborn St., Chicago 10, Secretary

1954 Clinical Meeting, Miami Florida, Nov 29-Dec. 2
1955 Annual Meeting Atlantic City N J., June 6-10
1955 Clinical Meeting Boston Nov 29-Dec. 2.
1956 Annual Meeting, Chicago, June 11-15
1956 Clinical Meeting, Seattle, Nov 27-30

ACADEMY OF PSYCHOSOMATIC MEDICINE, New York Oct. 8 9 Dr Ethan Allan Brown 75 Bay State Road Boston 15 Secretary

AMERICAN ACADEMY FOR CEREBRAL PALSY Williamsburg Inn Williamsburg Va Nov 4-6 Dr Harry E. Barnett, 116 South Michigan Blvd Chicago 3 Secretary

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY, The Waldorf Astoria New York, Sept. 19 24 Dr W L. Benedict, 100 First Avenue Bldg Rochester Minn Executive Secretary

AMERICAN ACADEMY OF PEDIATRICS Palmer House Chicago Oct. 4-7 Dr E H Christopherson 610 Church St., Evanston Ill Secretary

AMERICAN ASSOCIATION OF MEDICAL CLINICS Jung Hotel New Orleans Nov 12-14 Dr Arthur H Griep 420 Cherry St Evansville Ind., Secretary

AMERICAN ASSOCIATION OF MEDICAL RECORD LIBRARIANS Sheraton-Cadillac Hotel Detroit, Oct. 4-8 Miss Doris Gleason 510 N Dearborn St. Chicago 10 Executive Director

AMERICAN ASSOCIATION FOR THE SURGERY OF TRAUMA Hotel Claridge Atlantic City N J Nov 11-13 Dr James K. Stack 700 North Michigan Blvd., Chicago 11 Secretary

AMERICAN CANCER SOCIETY Hotel Roosevelt New York Oct. 17 24 Dr Charles S Cameron 47 Beaver St New York 4 Medical Director

AMERICAN CLINICAL AND CLIMATOLOGICAL ASSOCIATION Lake Placid Club Lake Placid N Y Oct. 14-16 Dr Marshall N Fulton 124 Waterman St. Providence 6 R. I., Secretary

AMERICAN COLLEGE OF GASTROENTEROLOGY The Shoreham Washington D C Oct 25-30 Dr A Xerxes Rossien 33 West 60th St. New York 23 Secretary

AMERICAN DENTAL ASSOCIATION Miami Fla., Nov 8-11 Dr Harold Hillenbrand 222 East Superior St. Chicago 11 General Secretary

AMERICAN FRACTURE ASSOCIATION Shamrock Hotel Houston Texas Oct. 11 14 Dr H W Wellmerling 626 Griesheim Bldg. Bloomington Ill. Secretary-General.

AMERICAN HEART ASSOCIATION Jung Hotel New Orleans Oct. 26-30 Mr Irving Hexter 44 East 23rd St. New York 10 Secretary

AMERICAN MEDICAL WRITERS ASSOCIATION Hotel Sherman Chicago Sept. 24 Dr Harold Swanberg, 510 Maine St., Quincy Ill., Secretary

AMERICAN OTORHINOLOGIC SOCIETY FOR PLASTIC SURGERY The Waldorf Astoria, New York, Sept. 19 Dr Louis J Feit, 66 Park Ave New York Secretary

AMERICAN PUBLIC HEALTH ASSOCIATION Memorial Auditorium Buffalo N Y Oct. 11 15 Dr Reginald M Atwater 1790 Broadway New York 19 Executive Secretary

AMERICAN ROENTGEN RAY SOCIETY Shoreham Hotel Washington D C., Sept. 21 24 Dr Barton R. Young Germantown Hospital Philadelphia 44 Secretary

AMERICAN SOCIETY OF ANESTHESIOLOGISTS Netherland Plaza Hotel Cincinnati Oct. 25-30 Dr J Earl Remlinger Jr., 188 West Randolph St., Chicago 1 Secretary

AMERICAN SOCIETY FOR THE STUDY OF ARTERIOSCLEROSIS *Sheraton Hotel* Chicago Oct. 31 Nov 1 Dr O J Pollak P O Box 22[illegible] Dover Del Secretary

AMERICAN SOCIETY OF TROPICAL MEDICINE AND HYGIENE Hotel Peabody Memphis Tenn., Nov [illegible]-6 Dr John E Larsh Jr Dept of Parasitology School of Public Health Univ of North Carolina Chapel Hill N C., Secretary

AMERICAN THERAPEUTIC SOCIETY The Chase Hotel St Louis Nov 4-7 Dr Oscar B Hunter 915 Nineteenth St. N W Washington D C. Secretary

ASSOCIATION OF AMERICAN MEDICAL COLLEGES French Lick Springs Hotel French Lick, Ind Oct. 1[illegible] 20 Dr Dean F Smiley 1[illegible] N Wabash Ave., Chicago 1 Secretary

Association of Life Insurance Medical Directors of America, Royal York Hotel Toronto Canada, Oct 12 14 Dr Henry B Kirkland, P O Box 594 Newark, N J Secretary

California Academy of General Practice Statler Hotel Los Angeles, Oct 24 27 Mr Wm W Rogers, 450 Mission St, San Francisco, Executive Secretary

Central Association of Obstetricians and Gynecologists, Hotel Jefferson St Louis Oct 7 9 Dr Harold I Gainey, Suite 602, 116 S Michigan Ave Chicago 3, Secretary

Central Society for Clinical Research Drake Hotel Chicago, Oct 29 30 Dr Robert H Ebert 950 East 59th St, Chicago 37, Secretary

Clinical Orthopaedic Society Sheraton Hotel Chicago Oct 7 9 Dr John H Moe 825 Nicollet Ave, Minneapolis, Secretary

Colorado State Medical Society Broadmoor Hotel Colorado Springs, Sept 21-24 Mr Harvey T Sethman 835 Republic Building Denver 2 Executive Secretary

Congress of Neurological Surgeons The Waldorf Astoria New York, Nov 4-6 Dr Bland W Cannon 1092 Madison Ave Memphis Tenn, Secretary

Delaware Medical Society of Dover Oct 11-13 Dr Norman L Cannon 1208 Delaware Ave Wilmington Executive Secretary

District of Columbia Medical Society of the Hotel Shoreham Washington D C Nov 1-3 Mr Theodore Wiprud, 1718 M St N W, Washington D C, Secretary

Gulf Coast Clinical Society, Edgewater Park, Miss, Oct 21 22 Dr F C Minkler Pascagoula Miss, Secretary

Indiana State Medical Association Murat Temple Indianapolis Oct 26 28 Mr James A Waggener 23 East Ohio St Indianapolis 4, Executive Secretary

Industrial Health Conference (Houston) Shamrock Hotel Houston Tex, Sept 23-25 Dr Sidney Schnur, 411 Medical Arts Bldg Houston 2 Tex Chairman

Interstate Post Graduate Medical Asssociation of North America Municipal Auditorium Minneapolis Nov 1-4 Dr Erwin R Schmidt, 1300 University Ave Madison 6 Wis Secretary

Inter Society Cytology Council Statler Hotel Boston Nov 12 13 Dr John B Graham, 32 Fruit St Boston Chairman Program Committee

Kansas City Southwest Clinical Society Kansas City Mo Oct 4-7 Dr Ira C Layton 306 E Twelfth St Kansas City 6E Mo Secretary

Kentucky State Medical Association Brown Hotel Louisville, Sept 21-23 Dr Bruce Underwood, 620 S Third St Louisville 2 Secretary

Michigan State Medical Society Sheraton Cadillac Hotel Detroit Sept 29 Oct 1 Dr L Fernald Foster 606 Townsend St, Lansing 15, Secretary

Midwestern Section of American Federation for Clinical Research, Thorne Hall Auditorium Northwestern University Medical Campus Chicago Oct 28 Dr R L Grissom Univ of Nebraska College of Medicine, Dept of Internal Medicine Omaha 5 Secretary

Mississippi Valley Medical Society Hotel Sherman, Chicago Sept 22-24 Dr Harold Swanberg, 510 Maine St, Quincy, Ill, Secretary

National Association for Mental Health, Hotel Statler New York, Oct 23-25 Mr Robert M Heininger, 1790 Broadway, New York 19, Executive Director

National Proctologic Association, Maryland Hotel Chicago Oct 7-9 Dr George E Mueller, 59 E Madison St, Chicago 2, Executive Secretary

National Rehabilitation Association Baltimore Oct 24 27 Mr E B Whitten, 514-16 Arlington Bldg, 1025 Vermont Ave, N W, Washington, D C, Executive Director

New Hampshire Medical Society Mt Washington Hotel, Bretton Woods, Oct 3-5 Dr W H Butterfield 18 School St, Concord, Secretary

North Texas-Southern Oklahoma Fall Clinical Conference Wichita Falls, Tex, Sept 22 Dr C H Wilson, 1300 Eighth St, Wichita Falls Tex, Chairman

Oklahoma City Clinical Society Conference, Oklahoma City Oct 25-28 Dr Charles E Leonard, 512 Medical Arts Bldg, Oklahoma City 2, Secretary

Omaha Mid-West Clinical Society Paxton Hotel Omaha Oct 25 28 Dr Louis E Moon, 1031 Medical Arts Bldg, Omaha 2, Secretary

Oregon State Medical Society, Heathman Hotel, Portland, Oct 13 16 Dr Charles E Littlehales, 1115 S W Taylor St, Portland 5, Executive Secretary

Pennsylvania, Medical Society of the State of, Bellevue-Stratford Hotel, Philadelphia, Oct 17-22 Dr Harold B Gardner, 230 State St, Harrisburg, Secretary

Regional Meetings, American College of Physicians

- Midwest, Indianapolis, Claypool Hotel Oct 9 Dr Wendell A Shullenberger, 3470 Central Ave, Indianapolis, Chairman
- New England, Hartford, Conn, Oct 22 Dr John C Leonard, 80 Seymour St, Hartford, Conn, Chairman
- New Jersey, Newark, Nov 3 Dr Edward C Klein Jr, 6 South Kingman Rd, South Orange, N J, Governor
- Southeastern, Edgewater Gulf Hotel, Edgewater Park, Miss, Oct. 15 16 Dr E Dice Lineberry, 1529 N 25th St, Birmingham 4, Ala., Governor

Southern Medical Association, St Louis, Nov 8 11 Mr C P Loranz, 1020 Empire Bldg, Birmingham 3, Ala, Secretary

Southern Society of Cancer Cytology, St Louis, Nov 8 11 Dr J Ernest Ayre, 1155 N W 14th St, Miami, Fla, Secretary

Southwestern Surgical Congress Skirvin Hotel, Oklahoma City, Sept. 20-22 Dr C R Rountree, 1227 Classen Drive Oklahoma City 3, Secretary

The Constantinian Society, The Broadmoor, Colorado Springs, Colo., Sept 26-29 Dr C F Shook, P O Box 1035 36, Toledo 1, Ohio, Secretary

Vermont State Medical Society, Mt Washington Hotel, Bretton Woods, N H, Oct 3 5 Dr James P Hammond, 337 South St., Bennington, Secretary

Virginia, Medical Society of, Shoreham Hotel, Washington, D C., Oct 31 Nov 3 Mr Robert I Howard, 1105 W Franklin St, Richmond, Executive Secretary

Western Association of Railway Surgeons Sun Valley Idaho, Sept. 23 25 Dr Leo L Stanley, 1322 Fifth Ave, San Rafael, Calif., Secretary

Wisconsin, State Medical Society of, Hotel Schroeder, Milwaukee Oct. 5 7 Mr Charles H Crownhart, 704 E Gorham St, Madison 3, Secretary

FOREIGN AND INTERNATIONAL

Commonwealth Health and Tuberculosis Conference, Royal Festival Hall London, England June 21-25, 1955 Mr J H Harley Williams, Tavistock House North Tavistock Square, London, W C 1, England, Secretary General

Conference of International Union Against Tuberculosis Madrid, Spain Sept 26 Oct 2, 1954 Secretariat, Escuela de Tisiologia, Ciudad Universitaria, Madrid Spain

Conference of the Solvay Institute of Sociology Universiti Libre de Bruxelles, Brussels, Belgium Oct 18-23, 1954 For information write Assistant to the Secretary A Dorsinfang Smets, Solvay Institute of Sociology, Parc Leopold, Brussels 4, Belgium

Congress of International Association of Applied Psychology London, England July 18 23 1955 Dr C B Frisby, National Institute of Industrial Psychology 14 Welbeck St, London, W 1, England President.

Congress of the International Diabetes Federation, Cambridge, England, July 4-8, 1955 Mr James G L Jackson, 152 Harley St, London W 1, England, Executive Secretary General

Congress of International Society of Medical Hydrology, Vichy, Paris, and Enghien, France, Sept 24-27, 1954 Dr Francon, 55, rue des Mathurins, Paris 8^e^, France Secretary-General

Health Congress of the Royal Sanitary Institute, Bournemouth, England April 26-29 1955 Mr P Arthur Wells, Royal Sanitary Institute 90 Buckingham Palace Road, London, S W 1, England Secretary

Inter American Congress of Radiology, Shoreham Hotel Washington, D C U S A, April 24 29 1955 Dr Eugene P Pendergrass, 3400 Spruce St, Philadelphia 4, Pa, U S A, Secretary General

Inter-American Session, American College of Surgeons, Universidad Mayor de San Marcos de Lima Lima, Peru S A, Jan 11-14, 1955 Dr Michael L Mason, 40 East Erie St Chicago 11, Ill, U S A., Secretary

International Anatomical Congress, Paris, France, July 25 30, 1955 Prof Gaston Cordier, 45, rue des Saints Pères, Paris 6^e^, France, Secretary-General

International Anesthesia Research Society, Ambassador Hotel Los Angeles, Calif, U S A, Oct 10-14 1954 For information write Dr T H Seldon, 102 110 Second Avenue S W Rochester Minn U S A

International Congress of Biochemistry Brussels, Belgium, Aug 1-6, 1955 Prof C Liebecq, 17 Place Delcour, Liege Belgium, Secretary General

International Congress of Comparative Pathology, Lausanne, Switzerland, May 26 31, 1955 Professor Hauduroy, 19 rue Cesar Roux, Lausanne, Switzerland, Secretary-General

International Congress on Diseases of the Chest, Barcelona, Spain Oct 4-8, 1954 Mr Murray Kornfeld, 112 East Chestnut St, Chicago 11, Ill, U S A, Executive Secretary

International Congress of Hydatid Disease Madrid, Spain Sept 25 30 1954 Dr Jesus Calvo Melendro, Hospital Provincial Sorea, Spain Secretary-General

International Congress of Military Medicine and Pharmacy, Luxemburg Luxemburg, Nov 7-12 1954 Colonel A R Vernengo Direcion General de Sanidad Militar, Pozos 2045, Buenos Aires Argentina S A., Secretary-General

International Congress of Plastic Surgery Stockholm Sweden Aug 1-4, 1955, and Uppsala, Sweden, Aug 5, 1955 Dr Tord Skoog Uppsala Sweden, General Secretary

International Federation of Medical Student Associations Rome Italy, Oct 1 5, 1954 Mr Jorgen Falck Larsen 12 Kristianiagade, Copenhagen Ø, Denmark, General Secretary

International Hospital Congress Lucerne Switzerland May 30-June 3 1955 Capt. J E Stone International Hospital Federation 10 Old Jewry London E C 2 England Hon Secretary

International Surgical Congress Geneva Switzerland May 23 26 1955 Dr Max Thorek 1516 Lake Shore Drive Chicago Illinois U S A Secretary-General

Japan Medical Congress Kyoto University and Kyoto Prefectural Medical College Kyoto Japan April 1 5 1955 Dr Mitsuharu Goto University Hospital Medical Faculty of Kyoto University Kyoto Japan Secretary-General

Latin American Congress of Physical Medicine Lima Peru S A Feb 14-19 1955 Dr Cassius Lopez de Victoria 176 East 71st St New York 21 N Y U S A Executive Director

Medical Journalism Meeting Exposition Universelle Romaine Rome Italy Sept 30 1954 Dr H Clegg B M.A House Tavistock Square London W C 1 England Secretary

Pan American Academy of General Practice, Lima Peru S A Feb 11 25 1955 Dr Arturo Martinez, 54 East 72nd St. New York 21 N Y U S A Secretary

Pan American Homeopathic Medical Congress Hotel Gloria Rio de Janeiro Brazil S A Oct 2 13 1954 Dr Paul S Schantz, 103 West Main St Ephrata Pa U S A Executive Secretary

Pan Pacific Surgical Congress Honolulu Hawaii Oct 7-18 1954 Dr F J Pinkerton Suite 7 Young Bldg Honolulu 13 Hawaii Director General

World Medical Association Rome Italy Sept. 26-Oct. 2, 1954 Dr Louis H Bauer 345 East 46th St New York 17 N Y U S A Secretary-General.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

Arizona * *Examination and Reciprocity* Phoenix Oct. 13 15 Jan 12 14 1955 and April 13 15 1955 Ex Sec Mr Robert Carpenter 401 Security Bldg., Phoenix.

Arkansas * *Examination* Little Rock, Nov 4-5 Sec Dr Joe Verser Harrisburg

California *Written* Sacramento Oct 18 21 *Oral* Los Angeles Nov 20 *Oral and Clinical Examination for Foreign Medical School Graduates* Sec Dr Louis E Jones 1020 N Street Sacramento

Colorado * *Reciprocity* Denver Oct. 13 *Examination* Denver Dec 7-8 Exec Sec Mrs B H Hudgens 831 Republic Bldg. Denver 2

Connecticut * *Examination* Hartford Nov 9 10 Sec Dr Creighton Barker 160 St Ronan St. New Haven

Delaware *Examination and Reciprocity* Dover Jan 11 13 Sec Dr J S McDaniel 229 So State St. Dover

District of Columbia * *Examination* Washington Nov 8 9 Deputy Director Mr Paul Foley Department of Occupations and Professions 1740 Massachusetts Ave N W Washington

Idaho *Examination and Endorsement* Boise Jan. 10-12. Exec Sec Mr Armand L. Bird 364 Sonna Bldg Boise

Illinois *Examination and Reciprocity* Chicago Oct. 5 7 Supt. of Registration Mr Frederic B Selcke Capitol Bldg Springfield

Iowa * *Examination* Des Moines Dec. 6-8 Exec Sec. Mr Ronald V Saf New State Office Bldg Des Moines 19

Kansas *Examination and Reciprocity* Topeka Dec 8 9 Sec. Dr O W Davidson 872 New Brotherhood Bldg Kansas City

Kentucky *Examination* Louisville Dec 6-8 Asst. Sec Mr R. F Dixon 620 S 3rd St. Louisville

Maine *Examination and Endorsement* Portland Nov 9 10 Sec Dr Adam P Leighton 192 State St Portland

Massachusetts *Examination* Boston Jan 18 21 Sec Dr Robert C Cochrane Room 37 State House Boston

Michigan * *Examination* Lansing Oct. 13-15 Sec Dr J Earl McIntyre 118 Stevens T Mason Bldg Lansing

Minnesota * *Examination and Reciprocity* Minneapolis Oct 19 21 Sec Dr E. M. Jones 230 Lowry Medical Arts Bldg St. Paul 2

Mississippi *Reciprocity* Jackson December Asst. Sec Dr R. Whitfield Old Capitol Jackson 113

Montana *Examination and Reciprocity* Helena Oct 4 Sec Dr S A. Cooney 214 Power Block Helena

Nebraska * *Examination* Omaha June Director Bureau of Examining Boards Mr Husted K. Watson State Capitol Bldg Room 1009 Lincoln 9

Nevada * *Examination and Endorsement* Reno Oct 5 Sec Dr G H Ross 112 Curry St Carson City

New Jersey *Examination* Trenton Oct. 19 22 Sec Dr E S Hallinger 28 W State St Trenton

New Mexico * *Examination and Reciprocity* Santa Fe Oct. 11-12 Sec Dr R C Derbyshire 227 E Palace Ave Santa Fe

North Carolina *Endorsement* Rocky Mount, Oct. 4 Sec Dr Joseph J Combs Professional Building Raleigh

North Dakota *Examination* Grand Forks Jan 5-8 *Reciprocity* Grand Forks Jan 8 Sec Dr C J Glaspel Grafton

Ohio *Examination* Columbus Dec 13 15 *Reciprocity* Columbus Oct. 4 Sec Dr H M Platter Wyandotte Bldg Columbus 15

Oregon * *Examination and Reciprocity* Portland Oct. 14-16 Exec. Sec Mr Howard I Bobbitt, 609 Failing Building Portland 4

Rhode Island * *Examination* Providence Oct. 7-8 Administrator of Professional Regulation Mr Thomas B Casey 366 State Office Bldg. Providence

South Carolina *Examination and Reciprocity* Columbia Nov 8 Sec Mr N B Heyward 1329 Blanding St Columbia

Tennessee * *Examination* Memphis Sept. 29 30 Sec Dr H. W Qualls 1635 Exchange Bldg Memphis

Texas * *Examination and Reciprocity* Fort Worth Dec 2-4 Sec Dr M H Crabb 1714 Medical Arts Bldg Fort Worth 2.

Utah *Reciprocity* Salt Lake City Nov 16 Director Department of Registration Mr Frank E Lees 324 State Capitol Bldg. Salt Lake City

Virginia *Examination* Richmond Dec 9 11 *Reciprocity* Richmond Dec 8 Address Board of Medical Examiners 631 First St., S W Roanoke

West Virginia *Examination* Charleston Oct. 11 Sec Dr Newman H Dyer State Office Bldg. No 3 Charleston 5

Wisconsin * *Reciprocity* Madison Oct. 15 Sec. Dr Thomas W Tormey Room 1140 State Office Bldg Madison 2

Wyoming *Examination and Reciprocity* Cheyenne Oct. 4 Sec Dr Franklin D Yoder State Office Bldg., Cheyenne

Alaska * On application Sec Dr W M. Whitehead 172 South Franklin St. Juneau.

Guam The Commission on Licensure will meet whenever a candidate appears or submits his credentials Sec Dr Benedict Cooper Agana.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska On application. Juneau or other towns in Territory as decided by Board. *Reciprocity* On application Sec. Dr C. Earl Albrecht Box 1931 Juneau

Arkansas *Examination* Little Rock, Oct 5-6 Sec. Dr Louis E Gebauer 1002 Donaghey Bldg., Little Rock.

District of Columbia *Examination* Washington Oct. 18 19 Deputy Director Department of Occupations and Professions Mr Paul Foley 1740 Massachusetts Ave N W Washington

Florida *Examination* Gainesville, Nov 6 Sec Mr M W Emmel Box 340 University of Florida, Gainesville

Iowa *Examination* Des Moines Oct. 12 Sec Dr Ben H. Peterson Coe College Cedar Rapids

Michigan *Examination* Detroit and Ann Arbor Oct. 8 9 Sec., Mrs Anne Baker Mason Bldg., Lansing 2

Nebraska *Examination* Omaha Oct. 5-6 Director Mr Husted K. Watson Room 1009 State Capitol Bldg. Lincoln 9

Nevada *Examination* Reno Oct 5 Sec Dr Donald G Cooney Box 9005 University of Nevada Reno

New Mexico *Examination* Santa Fe Oct. 17 Sec Mrs Marguerite Cantrell P O Box 1522, Santa Fe

Oklahoma Oklahoma City April 8-9 Sec., Dr C Gallaher 813 Braniff Bldg Oklahoma City

Oregon *Examination* Portland Dec 4 Sec Mr Charles D Byrne State Board of Higher Education Eugene

Rhode Island *Examination* Providence Nov 10 Administrator of Professional Regulation, Mr Thomas B Casey 366 State Office Bldg Providence

Tennessee *Examination* Memphis Sept. 20-21 Sec., Dr O W Hyman 874 Union Ave Memphis 3

Texas *Examination* Austin Oct. 22 23 Address Mrs Betty Ratcliff Chief Clerk, 407 Perry Brooks Bldg., Austin

Wisconsin *Examination* Madison Sept. 24 *Milwaukee Dec. 4. Sec.,* Mr W H Barber 621 Ransom St. Ripon.

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*Basic Science Certificate required

DEATHS

Sanderson, Everett Shovelton ⊕ Augusta, Ga, born in Fall River Mass, June 22 1894, Washington University School of Medicine, St Louis, 1934, specialist certified by the American Board of Preventive Medicine professor of medicine, microbiology, and public health at the University of Georgia Medical Department assistant instructor of bacteriology at Yale University School of Medicine in New Haven, Conn, from 1920 to 1923 assistant professor of bacteriology and pathology at the University of Virginia Department of Medicine, Charlottesville, from 1925 to 1928, head of the department of bacteriology and pathology at the University of Mississippi School of Medicine, University, from 1928 to 1930, assistant professor of bacteriology and public health at his alma mater from 1930 to 1934, from 1923 to 1925 on the staff of the Rockefeller Institute for Medical Research and in 1929 special member of the International Health Division of the Rockefeller Foundation, served with the American Expeditionary Forces during World War I, fellow of the American Public Health Association, member of the Southern Medical Association, past president of the Augusta-Richmond Tuberculosis Association, honors included an appointment in 1946 as chief regional medical officer of the China Mission to Kiangsi Province, under the United Nations Relief and Rehabilitation Administration program, died in Veterans Administration Hospital July 16, aged 60, of cerebral arteriosclerosis

Freeman, Allen Weir ⊕ Baltimore, born in Lynchburg, Va, Jan 7, 1881, Johns Hopkins University School of Medicine, Baltimore, 1905, specialist certified by the American Board of Public Health, member of the Medical Society of Virginia and the American Public Health Association, of which he was past president, served with the Virginia State Health Department from 1908 to 1915, and as director of the Rockefeller Hookworm Commission in Virginia from 1910 to 1914, epidemiologist in the U S Public Health Service from 1915 to 1917, state commissioner of health of Ohio from 1917 to 1921, resident lecturer in public health from 1921 to 1923 at Johns Hopkins School of Hygiene and Public Health, where he was professor of public health administration from 1923 to 1946 and dean from 1934 to 1937, served during World War I, for many years served with the Maryland State Department of Health and the Baltimore City Health Department, editor of "A Study of Rural Public Health Service," published in 1933, author of "Five Million Patients", died in Johns Hopkins Hospital July 3, aged 73, of carcinoma of the prostate

Gustafson, Gerald Williams ⊕ Indianapolis, born in Chesterton, Ind, Oct 8, 1899, Northwestern University Medical School, Chicago, 1925, professor of obstetrics and gynecology at the Indiana University School of Medicine, specialist certified by the American Board of Obstetrics and Gynecology, member of the American Association of Obstetricians, Gynecologists, and Abdominal Surgeons and the Central Association of Obstetricians and Gynecologists, fellow of the American College of Surgeons, in 1945 a member of the advisory committee to the Bureau of Maternal and Child Health of the Indiana State Board of Health, and in 1946 and 1947 chairman of that committee, in 1948 named chairman of the Indiana State Medical Association Committee on Maternal and Child Health and from 1949 through 1953 a member of that committee, on the staffs of the Coleman, St Vincent's, and Methodist hospitals, died in the Massachusetts General Hospital, Phillips House, June 14, aged 54, of complications following an operation

Sobel, Jacob ⊕ New York City, born Dec 17, 1872, Columbia University College of Physicians and Surgeons, New York, 1895, an Associate Fellow of the American Medical Association, past president of the Harlem Medical Society, from 1899 to 1922 associated with the city's department of health, serving during the last four years of that period as assistant director of the bureau of child hygiene, from 1922 to 1933 a member of the health department's advisory board, at one time professor of hygiene at Fordham University School of Medicine, founder of the Hospital for Joint Diseases, where he was president of the medical board in 1934, and for many years attending pediatrician, served as attending pediatrician at the Beth David and Gouverneur hospitals, in 1942 won first prize in a national essay contest arranged by Town Hall in connection with its radio forum, "America's Town Meeting of the Air", died July 25, aged 81

Gerhart, William Francis ⊕ Selinsgrove, Pa, born in Philadelphia Nov 3, 1887, College of Physicians and Surgeons, Baltimore, 1912, during World War I served overseas as a captain in the Medical Corps and later as contract surgeon for the U S Army Recruiting Office in Philadelphia, where he formerly practiced and where he was a member of the board of health and was affiliated with the Frankfort Hospital and the Philadelphia State Hospital, from 1942 to 1952 served as staff physician at the Selinsgrove State School, consulting physician for the Eugenia Memorial Hospital at White Marsh until recently, died July 2, aged 66, of esophageal varices

Towne, George Scott ⊕ Saratoga Springs, N Y, born in South Woodbury, Vt, Sept 3, 1873, Albany (N Y) Medical College, 1899, an Associate Fellow of the American Medical Association, and a member of its House of Delegates in 1918, 1940, 1942, 1943, 1944, fellow of the American College of Surgeons, served as president of the New York and New England Association of Railway Surgeons, affiliated with the Saratoga Hospital, where he was past president of the staff, served as surgeon for the Adirondack Division of the Delaware & Hudson Railroad, past president of the Saratoga Springs Rotary Club, died in a nursing home in Stamford, Conn, July 20, aged 80, of a cerebrovascular accident and general arteriosclerosis

Andrews, Herman David ⊕ Glen Cove, L I, N Y, University of Buffalo School of Medicine, 1905, member of the American Academy of Ophthalmology and Otolaryngology, an associate fellow of the American Medical Association, practiced in East Aurora and Buffalo, where he was on the staff of the Buffalo Eye and Ear Hospital, died July 23, aged 75

Baker, George Washington ⊕ Walters, Okla, Atlanta College of Physicians and Surgeons, 1902, served as county health superintendent, died in Duncan July 15, aged 81, of cardiorenal insufficiency

Baker, Johnson Joshua ⊕ Magnolia, Ark, Memphis (Tenn) Hospital Medical College, 1902, served as city and county health officer, died July 25, aged 75, of carcinoma of the liver

Barnes, Harry Aldrich, Pembroke, Mass, Harvard Medical School, Boston, 1896, specialist certified by the American Board of Otolaryngology, member of the American Laryngological Association and the New England Oto-Laryngological Society, served during World War I, formerly on the staff of the Massachusetts General Hospital in Boston, died July 18, aged 82

Barnett, James Russell ⊕ Arkadelphia, Ark, University of Arkansas School of Medicine, Little Rock, 1940, on the staff of the Memorial Hospital, died in Gurdon (Ark) Municipal Hospital July 7, aged 41, of heart failure

Bauer, John A ⊕ Germantown, Ill, Beaumont Hospital Medical College, St Louis, 1897, served on the staff of St Joseph's Hospital in Breese, where he died July 15, aged 80, as the result of a fractured knee and diabetes mellitus

Billings, Elton Pope ⊕ Grand Rapids, Mich, University of Michigan Medical School, Ann Arbor, 1906, at one time on the faculty of his alma mater, affiliated with Butterworth and Blodgett Memorial hospitals, died July 3, aged 79, of coronary occlusion.

Blum, Julius, New York City, Columbia University College of Physicians and Surgeons, New York, 1910, formerly with the bureau of laboratories of the city health department, served as pathologist for the Home for Hebrew Infants, died July 13, aged 69, of cerebral thrombosis

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⊕ Indicates Member of the American Medical Association

Breuer, Roland George ⊕ San Jose, Calif, University of Nebraska College of Medicine, Omaha, 1919 affiliated with San Jose Hospital and O Connor Hospital, where he died June 22, aged 59, of lobar pneumonia, following an operation

Clarke, William Franklin, Petersburg, Va, Leonard Medical School, Raleigh, N C, 1905, for many years member of the local draft board, died July 17, aged 88, of coronary occlusion

Cleary, Thomas Joseph, Brooklyn, Georgetown University School of Medicine, Washington, D C, 1908 affiliated with Samaritan Hospital, where he died July 24, aged 68, of cancer

Dialon, Ismar ⊕ Los Angeles, Ludwig Maximilians Universität *Medizinische Fakultät*, Munchen, Bavaria, Germany, 1923 died July 3, aged 57, of coronary occlusion

Dickson, Hugh F., Covington, Tenn Memphis (Tenn) Hospital Medical College, 1909, died in Baird Brewer Hospital, Dyersburg, July 14, aged 69, of coronary occlusion

Dudley, Norman Spear, Church Hill Md, University of Maryland School of Medicine, Baltimore, 1901 served as county health officer; affiliated with Memorial Hospital in Easton, died in the Kent and Upper Queen Anne s General Hospital, Chestertown, July 1, aged 80, of cerebral hemorrhage

Duffy, Paul Victor ⊕ Cleveland, Creighton University School of Medicine, Omaha, 1922, specialist certified by the American Board of Obstetrics and Gynecology on the staffs of the Marymount Hospital, St. Ann Hospital, and St. Alexis Hospital, where he died July 5, aged 57, of abdominal carcinoma with metastasis

Fichthorn, Lewis Leitzell, Harrisburg, Pa., Western Pennsylvania Medical College, Pittsburgh, 1902, affiliated with the Western Pennsylvania Hospital, died July 5, aged 76, of coronary occlusion

Gaunt, George Garber, Cannon Beach, Ore, University of Oregon Medical School, Portland, 1910, died July 27, aged 72

Gee, Robert Lee ⊕ Hugo, Okla, St. Louis College of Physicians and Surgeons, 1903 past president of the Choctaw County Medical Society, died June 22, aged 75

George, Elmer August, Cleveland Western Reserve University School of Medicine, Cleveland, 1914, for many years physician for the board of education, and physician for the children's hygiene division of the city health department, died July 29, aged 68, of coronary thrombosis

Giles, Robert Emmett, Mendenhall, Miss University of Nashville (Tenn) Medical Department, 1906, served as part-time county health officer; died in Magee Aug 7, aged 75

Greeff, John G W ⊕ Quogue, N Y, Columbia University College of Physicians and Surgeons, New York, 1896, served on draft board during World Wars I and II, commissioner of the department of hospitals in New York City from 1929 to 1933 died in Center Moriches July 27, aged 80, of arteriosclerosis

Grossman, Aaron ⊕ Allentown, Pa, Tufts College Medical School, Boston, 1931 served during World War II, member of the staffs of the Allentown and Sacred Heart hospitals, died July 3, aged 48, of a heart attack.

Gruenhagen, Arnold Phillip ⊕ St. Paul University of Illinois College of Medicine, Chicago, 1919, fellow of the American College of Surgeons, affiliated with Ancker, St Joseph s, Miller, and St Luke s hospitals, died July 6, aged 59, of cerebral hemorrhage

Hansbrough, Lyle Jamesson ⊕ Front Royal Va. University of Virginia Department of Medicine Charlottesville, 1936, on the staff of the Warren Memorial Hospital as chief surgeon died July 5, aged 42, of cerebral hemorrhage

Harbison, J Glen ⊕ Spokane, Wash, the Hahnemann Medical College and Hospital Chicago 1905, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois 1907, fellow of the American College of Surgeons served on the staffs of the Deaconess and Sacred Heart hospitals died July 18, aged 73, of pernicious anemia.

Henderson, Arvin, Ridgeville, Ind, University of Louisville (Ky) Medical Department, 1911, died in the Jay County Hospital, Portland July 8, aged 66, of injuries received in an automobile accident.

Hill, George Washington, Ardmore, Okla., Meharry Medical College, Nashville, 1908, died July 16, aged 72, of heart failure

Hoffmann, Oskar, Utica, N Y Medizinische Fakultät der Universität, Vienna, Austria, 1912 senior resident physician at Utica State Hospital, where he died July 31, aged 66, of myocardial infarction

Hollingsworth, Gervas Foster ⊕ Dyess, Ark., University of Arkansas School of Medicine Little Rock, 1928 for many years owner of the Dyess Hospital on the staff of the Osceola (Ark.) Memorial Hospital, died at his summer home in Lake Hamilton July 20 aged 52

Hubbard, James Filmer ⊕ Waynesboro, Va., University College of Medicine, Richmond, 1908, served during World War I affiliated with Waynesboro Community Hospital, died in the University of Virginia Hospital, Charlottesville, June 29, aged 78 of arteriosclerotic heart disease

Hurley, James Edward, Worcester, Mass, University of Maryland School of Medicine, Baltimore 1904 for many years medical examiner for the Baltimore and Ohio Railroad, died in St. Vincent Hospital July 6, aged 73, of duodenal ulcer

Hutchinson, Abbott Trask ⊕ Coconut Grove, Fla born in 1880, University of Vermont College of Medicine, Burlington 1905 member of the Medical Society of the State of New York and the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons an Associate Fellow of the American Medical Association, specialist certified by the American Board of Otolaryngology; at one time practiced in New York City; died in Brattleboro, Vt., July 12, aged 74, of chronic myocarditis and cerebral arteriosclerosis.

Hyland, Edward Joseph ⊕ Jamaica, N Y, University and Bellevue Hospital Medical College, New York, 1911 served during World War I affiliated with Mary Immaculate Hospital, where he died June 18, aged 67, of cerebral hemorrhage

Jarratt, Thomas Franklin, Jarratt, Va., University College of Medicine, Richmond, 1904, died May 21, aged 76, of a heart attack.

Keeling, James E ⊕ Waldron, Ind, Medical College of Indiana, Indianapolis 1891, an Associate Fellow of the American Medical Association formerly county health officer; vice president and director of the State Bank of Waldron died in Major Hospital, Shelbyville, June 26, aged 86, of chronic nephritis and arteriosclerosis

Kellty, Robert Andrew ⊕ Washington, D C, University of Pennsylvania Department of Medicine, Philadelphia, 1907, member of the American Society of Clinical Pathologists; died July 19, aged 68

Laczynski, Francis Stephen, Dearborn, Mich, Chicago College of Medicine and Surgery 1914, served during World War I affiliated with St Francis Hospital in Hamtramck, died June 1, aged 64, of coronary thrombosis

Larrabee, Ervin E., Williamston Mich Detroit College of Medicine, 1903, served on the staffs of the Edward W Sparrow and St Lawrence hospitals died in Lansing July 7, aged 80 of cerebral hemorrhage

Lowe, Henry Hufman, Leesburg, Ohio, University of Cincinnati College of Medicine, 1915, president of the Highland County Medical Association served during World War I member of the Highland County Board of Education chief of staff of the Greenfield (Ohio) Municipal Hospital, died in the Holmes Hospital Cincinnati, June 26 aged 65, as the result of a kick from a horse

Lutz, James Sharp ⊕ Louisville Ky Kentucky University Medical Department, Louisville 1905 served during World War I, died in St. Joseph Infirmary July 13, aged 76

McAllister, E. R., Seminole Okla., Barnes Medical College, St. Louis 1897, died June 5, aged 82, of coronary occlusion

Mahaffey, John A, Richmond, Ky, Hospital College of Medicine Louisville, 1893, past president of the Madison County Medical Society, affiliated with Pattie A Clay Infirmary, where he died July 15, aged 88, of acute left ventricular failure

Maislen, Arnold Kenneth, Hartford Conn Yale University School of Medicine, New Haven, 1952 certified by the National Board of Medical Examiners also a dentist, from July 1, 1943, to Dec 22, 1945, an ensign in the U S Navy, resident at the Bellevue Hospital in New York City, died in Hartford Hospital June 18, aged 29, of Hodgkin's disease

Malster, Robert Mahaffey, Worthington, Ohio, Rush Medical College, Chicago, 1894, served during World War I, died in the Harding Sanatorium July 10, aged 85

Manly, Thomas Edward ⊕ Ramsey, N J, Fordham University School of Medicine, New York, 1921, formerly practiced in Paterson, N J, where he was sheriff of Passaic County, health commissioner, and at one time member of the state legislature, served on the staff of the Paterson (N J) General Hospital, where he died July 13, aged 56, of carcinoma of the left lung

Metzner, Abraham, Los Angeles, Cleveland Homeopathic Medical College, 1912, died July 6, aged 68

Morden, Esli Terrill ⊕ Adrian, Mich, Michigan College of Medicine and Surgery, Detroit, 1901, past president and treasurer of the Lenawee County Medical Society, at one time secretary of the Northern Tri-State Medical Association, served during World War I, past president and member of the board of the Adrian City Club, a charter member and director of the Adrian Rotary Club, of which he was president in 1938, died June 1, aged 76, of carcinoma of the liver

Murphy, Daniel Joseph ⊕ New Orleans, Tulane University of Louisiana School of Medicine, New Orleans, 1915, member of the American Academy of General Practice, past president of the Catholic Physicians' Guild, formerly vice-president of the Louisiana State Medical Society, served during World War I and was awarded the British Military Cross, past president of the staff of Hotel Dieu, where he died July 6, aged 60, of coronary thrombosis

Pettijohn, Blanchard Beecher, Indianapolis, Medical College of Indiana, Indianapolis, 1901, died July 9, aged 76, of arteriosclerosis

Piper, Harry Elwin ⊕ Santa Cruz, Calif, Medical Department of the University of California, 1902, formerly city health officer, chairman of the city planning commission, served during World War I, died in the University of California Hospital in San Francisco July 24, aged 77, of congestive heart failure

Ritchey, James Weslie, Kansas City, Mo, Missouri Medical College, St Louis, 1891, died Aug 8, aged 85

Ritter, Fred Lester, Oceanside, Calif, Albany (N Y) Medical College, 1912, member of the founders group of the American Board of Surgery, formerly assistant professor of gynecology at Syracuse University College of Medicine, served during World Wars I and II, died in U S Naval Hospital, Camp Pendleton, July 9, aged 68, of dissecting aneurysm

Robles, Charles Walter ⊕ Lieut Commander, U S Navy, retired, Tampa, Fla, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1918, entered the U S Navy in December, 1920, retired Dec 1, 1943, died June 18, aged 59, of adenocarcinoma of the colon

Rosenblatt, Joseph ⊕ Kerrville, Texas, Long Island College Hospital, Brooklyn, 1915, member of the California Medical Association, American College of Chest Physicians, and the American Trudeau Society, affiliated with the Veterans Administration Hospital, died in the Sid Peterson Memorial Hospital, July 23, aged 70, of carcinoma

Rubenstein, William Evans, St Louis, St Louis University School of Medicine, 1923, died in the Jewish Hospital July 3, aged 55, of coronary thrombosis

Schwalbe, Albert Eugene, Ripley, Ohio, Cornell University Medical College, New York, 1910, died in the Good Samaritan Hospital, Cincinnati, July 8, aged 74, of carcinoma of the prostate and coronary thrombosis

Shapiro, Newton Hart ⊕ San Francisco, University of California Medical School, San Francisco, 1932, served during World War II, on the staffs of Mount Zion and Hahnemann hospitals, died June 20, aged 47, of coronary occlusion

Smith, Houghton Currier, North Amherst, Mass, Baltimore Medical College, 1903, died June 13, aged 77, of coronary thrombosis

Sparks, James Cecil, Ashland, Ky, Hospital College of Medicine, Louisville, 1906, past president of the Boyd County Medical Society, served as chief of staff of the King's Daughters' Hospital, died June 3, aged 79, of arteriosclerotic heart disease

Sproat, James, Portland, Ore (licensed in Oregon in 1906), died June 24, aged 78, of perforated peptic ulcer

Stewart, Luther G, Ellaville, Ga, Atlanta Medical College, 1895, died June 2, aged 82, of arteriosclerosis

Strayhorn, Le Roy Powell ⊕ Santa Ana, Calif, Memphis (Tenn) Hospital Medical College, 1903, on the staff of St Joseph Hospital in Orange, where he died May 14, aged 75, of congestive heart failure

Stukes, Joseph Theoditus, Americus, Ga, Medical College of the State of South Carolina, Charleston, 1901, died in Macon July 5, aged 77, of Parkinson's disease

Sussman, Jacob Joel ⊕ Brooklyn, Long Island College Hospital, Brooklyn, 1911, affiliated with the Kingston Avenue Hospital and the Maimonides Hospital, where he died July 12, aged 66, of mesenteric thrombosis and auricular fibrillation

Sufer, Waldo Charles ⊕ Waterville, Ohio, Ohio State University College of Medicine, Columbus, 1926, past president of the Waterville Rotary Club, on the staffs of the Mercy Hospital, Flower Hospital, Toledo Hospital, and the Riverside Hospital in Toledo, where he died June 12, aged 60, of hypernephroma with metastases to the lungs

Sweaney, J David ⊕ Minter City, Miss, Memphis (Tenn) Hospital Medical College, 1902, died in Greenwood Leflore Hospital, Greenwood, June 22, aged 75, of cardiovascular renal disease

Taylor, Herbert Wellington ⊕ Lieutenant Colonel, U S Army, retired, Fairfax, Vt, University of Vermont College of Medicine, Burlington, 1911, served during World War I, entered the regular Army as a captain Sept 15, 1920, promoted to lieutenant colonel April 8, 1937, retired Dec 31, 1939, died July 2, aged 68, of cancer of the throat

Van Arsdall, Charles Alexander, New York City, Johns Hopkins University School of Medicine, Baltimore, 1949, interned at the Duke Hospital in Durham, where he served a residency, during the early part of the Korean War served as a lieutenant (j g) in the U S Naval Reserve, resident at the Bellevue Hospital Center 16, where he died suddenly, July 21, aged 28

Whaley, Arthur Maunder ⊕ Colonel, U S Army, retired, Washington, D C, University of Buffalo School of Medicine, 1896, fellow of the American College of Surgeons, entered the regular Army in 1903, promoted through the various ranks to that of colonel July 14, 1929, retired Dec 31, 1936, by operation of law, returned to active duty from Feb 10, 1942, to Dec 2, 1945, at one time superintendent of the Gorgas Hospital in the Canal Zone, died May 6, aged 81, of cerebral hemorrhage

Williams, Carl Granger ⊕ Santa Monica, Calif, College of Medical Evangelists, Loma Linda and Los Angeles, 1923, served during World War I, on the staffs of the Santa Monica and St. John's hospitals, died July 7, aged 57, of fatty degeneration of the liver

Williams, Robert Percy ⊕ Rutland, Vt, University of Vermont College of Medicine, Burlington, 1925, affiliated with Rutland and Proctor hospitals, died in Fulton July 25, aged 54, of coronary thrombosis

Wisely, Edward Darragh ⊕ Staten Island, N Y, Columbia University College of Physicians and Surgeons, New York, 1896, for many years served as secretary-treasurer of the Richmond County Medical Society, affiliated with St Vincent's and Staten Island hospitals, died in the Richmond Memorial Hospital May 31, aged 79, of pneumonia

FOREIGN LETTERS

BRAZIL

Mechanism of Metastasis Production —During the International Congress of Cancer, held at São Paulo in August Dr Francisco Fialho of Rio de Janiero reported that he had studied the different routes followed by the neoplastic cells and the general conditions that stimulate the production of metastases Venous invasion is much commoner than arterial invasion Metastases through the blood channels are common from chondrosarcomas These may occur through the venous plexus as described by Batson or through arteriovenous pulmonary anastomosis Metastases by way of the spinal fluid are uncommon and occur only in some types of the central nervous system blastoma The structure of the primary tumor may interfere with the mechanism of metastasis Malignant differentiated blastomas with slow development may produce metastases later or less frequently than the more undifferentiated tumors The reported metastasis of the neoplasms considered microscopically benign suggest that their malignancy is more a biological than a histological condition The fact that many neoplastic cells that enter the circulation are destroyed suggests a lack of adaptation of the neoplastic cell to the new tissue rather than a specific tissue defense

Hemorrhage in Portal Hypertension.—In a paper published in *Revista de medicina e cirurgia de São Paulo* for May, 1954 page 219, Dr Alvaro Dino de Almeida of São Paulo stated that patients with portal hypertension who die of hematemesis are rarely found at autopsy to have ruptured esophageal varices He had seen patients with portal hypertension without hematemeses and others with slight hypertension who had profuse bleeding When such varices are therapeutically sclerosed, hemorrhages from them do not occur, but hematemesis may occur in the absence of esophageal varices, peptic ulcers or neoplasms Surface hemorrhages may be due to altered permeability of capillary walls or multiple erosions The frequently seen association of changes in the central nervous system, especially in the hypothalamus, with hemorrhagic lesions of the digestive tract, especially the stomach, suggest that the same mechanism, through the autonomic nervous system, may be responsible for hemorrhages in patients with portal hypertension Such patients might be benefited by bilateral vagotomy

Intussusception.—A series of 29 children with intussusception was presented by Drs Virgilio A de Caravalho Pinto and Roberto Vilhena de Moraes before the Associacao Paulista de Medicina All but two of the patients were under one year of age Their study covers the period from January, 1951, to December, 1953 Six patients were treated by the barium enema method, 9 by the same method plus operation, and 14 by operation alone There were three deaths Early diagnosis improves the prognosis The barium enema method of treatment should be used cautiously and only in the first few hours after the onset of symptoms If the intussusception is irreducible or gangrene of the intestine is suspected, the treatment of choice is resection with primary anastomosis

ENGLAND

General Practice in the United States and Britain —Dr Charles M Fleming of Scotland, after a three months tour in the United States, has compared the conditions of medical practice that he found with those in Britain According to him, equipment is better in American practices Examination couches in the consulting room are meant to be used and are not articles of furniture Shortwave diathermy machines ultraviolet-ray lamps electrocardiographs x ray machines spirometers for measuring basal metabolic rates and even anesthetic apparatus are far more in evidence in American physicians' offices Refrigerators for storage of biologicals, dressing carts, and scales for weighing patients might be said to be standard equipment. In the United States there is a much greater saving of the physician's time because he makes greater use of an ancillary staff such as nurses, technicians, and secretaries The nurse commonly undertakes simple laboratory tests and secretarial work, but a separate secretary-receptionist and sometimes a technician are employed. the English general practitioner seldom employs a full-time secretary Fleming described the waiting rooms attached to some group practices as comparable to lounges in luxury hotels Laboratory work in such group practices is often complete and rarely is work sent outside More elaborate investigations are done in hospital or commercial laboratories The good general practitioner does not abuse laboratory tests or use them as short cuts to diagnosis

Fleming noted that a large proportion of American general practitioners hold some form of hospital appointment In Baltimore and New York, for example, about two-thirds of them have hospital affiliations It is generally accepted that the American general practitioner should have the privilege of caring for his own private patients in a hospital and should have the opportunity of working under supervision in the wards and outpatient department of the public hospitals Regular staff appointments are held by many general practitioners Fleming states that in New York there are two and a half times as many physicians in proportion to the population as there are in Scotland He thinks that if hospitals in Scotland were run on American lines every Scottish physician could have a hospital appointment in addition to his private practice The American Medical Association the American College of Surgeons, and the American Hospital Association advocate that the general practitioner as well as the specialist should have access to the modern hospital, which he should be able to use to the degree that his training and experience warrant.

The scope of the general practitioner s work in the United States is a good deal wider than in Britain This, in part, explains his more elaborate diagnostic and therapeutic equipment, which is really necessary for his work and which is expected by his patient. An occasional major operation is still performed by general practitioners in large cities like New York and Baltimore The general practitioner surgeon is now unknown in Britain, he disappeared with the advent of the National Health Service in 1948 In the United States the general practitioner is encouraged to investigate and treat his patients with a full range of diagnostic and therapeutic facilities, which in Britain are available only to the hospital specialist. Fleming says "I am satisfied that he [the American practitioner] can and does do a better job in many, but not all ways, than is done by the general practitioner here [in Britain] "

Group practice is commoner in America than in Britain The physician in group practice is able to do his best work, having ready access to the necessary specialist advice and diagnostic and therapeutic facilities Economy is effected by sharing accommodation, equipment, and ancillary personnel There is also an economical use of medical manpower, because the young physician is kept fully employed and does not wait for patients for long periods in a newly established practice The physician in group practice has time and facilities for private study and attendance at meetings, conventions, and postgraduate courses and can work more easily in any specialty in which he may wish to develop his knowledge and talents He has more leisure because night duty, emergency calls and so forth are shared by some form of rotation. The fundamental justification for group practice is the opportunity it offers for greater efficiency in the key member of the team the family physician, and hence better service for the patient. Fleming remarked that the American physician has more time in which to see his patient he needs it to practice his wider range of skills The only criticism Fleming had of general practice in the United States was that more time might sometimes be given to consideration of the patient as a person this was often lacking when the physician was preoccupied with instrumental

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The items in these letters are contributed by regular correspondents in the various foreign countries

investigation, laboratory tests, and roentgenologic and other examinations In the main the British general practitioner has a better knowledge of the patient and his family, work, upbringing, and social background Fleming was impressed with the standard of work done by most American general practitioners, the reactions of patients, and the confidence of all in the future of general practice The success of the American Academy of General Practice with its membership of 17,000, has undoubtedly contributed to this and enhanced the status of the general practitioner

Fleming compares the work and lot of the British general practitioner with his American counterpart In Britain today there is so much competition for practice vacancies that the physician without adequate postgraduate experience in a hospital and as an assistant in general practice has little chance of success Entry into general practice since 1948 has become far too difficult Schemes are under way for the training of general practitioners after qualification, and a three year period is envisaged—one year under supervision of a general practitioner, another in a specially designed hospital appointment, and a third either in a hospital or as a locum tenens in general practice Many specialist trainees are now going into general practice because more have been employed in hospitals than can be absorbed there and general practice is their only outlet at the moment This condition, resulting from administrative errors in the health service, is only temporary In Britain a college of general practitioners, similar to the American Academy of General Practice, has recently been founded, and it is hoped that this will facilitate the postgraduate educational needs of the general practitioner So-called health centers with group practice, which were envisaged before it was realized that the health service would cost nearly $1,400,000,000 yearly, now exist in the imagination only One or two that have been built as an experiment have been found costly to build and run

The skills acquired by the physician in training and in the hospital are often lost quickly in the more limited general practice in Britain All patients but those with the simplest cases are now referred by him to a hospital for diagnosis and treatment The British general practitioner has been slowly displaced over the years from the status of the "family doctor" in its fullest sense by the encroachments of socialized medicine and the growth of the clinic system and specialism The latter has been intensified since the introduction of the National Health Service, which started at the wrong end It has made it easier for the patient to enter the hospital for treatment by raising the status of the specialist and lowering that of the general practitioner, who often acts as a sign post directing the patient to the right hospital department It has been pointed out that the way to run a health service efficiently and economically is to keep the patient out of the hospital whenever possible This can be done by increasing the general practitioner's diagnostic and therapeutic skills, as has been done in the United States By the use of special laboratory facilities and radiological examinations, it should be possible for the general practitioner to make the diagnosis in most cases Apart from the few isolated districts where surgical emergencies cannot wait for a specialist and must be attended by the general practitioner, major surgery is, and should be, performed in the hospitals, where it can be done more efficiently

The main needs of the general practitioner today in Britain are adequate time to do his work efficiently, facilities to practice medicine efficiently with his own accommodation, equipment, and staff and access to special diagnostic and therapeutic services at the hospital or elsewhere, some form of hospital appointment, and regular and appropriate postgraduate training Time for the general practitioner could be gained by making entry into practice easier, stimulating partnerships, reducing the permitted maximum number of patients that a physician can have on his list, and improving the distribution of physicians in the community Medical manpower could be saved by using ancillary services efficiently, as in the United States Unfortunately, at the moment general practitioners are not welcome as members of hospital staffs Many who were formerly attached to some of the larger hospitals were forced to resign when the National Health Service was introduced In the British hospital system with its hierarchy of specialists, trainee specialists, and interns, there is at present little place for the general practitioner

Abuse of Rest—In a discussion at the Royal Society of Medicine, London, Professor Arnott of Birmingham said that therapeutic rest was prescribed too often and unwisely by unthinking physicians He extolled the value of work, even hard work, which is beneficial to the organism In overdose, he said, rest is very toxic and sometimes lethal and should be classed as a "drug of addiction", like morphine and related drugs, it should be included in the scope of the dangerous drugs act and be prescribable only in clearly defined doses, not to be repeated without further prescription Rest in bed occupies a large place in current therapeutics It is normal for a person to be mobile and absurd for him to spend all his time in bed, even if he is ill Rest is usually understood to mean rest in bed, Professor Arnott thinks that it should be out of bed, unless the physician prescribes it specifically in bed Immobilization per se produces a train of profound disturbances in metabolism The patient's nitrogen and calcium balance is disturbed and the increased excretion of calcium and rise in urinary pH favor the precipitation of calcium phosphate, and hence calculi, in the urinary tract There is also a decline in blood volume, a deterioration in the hemodynamics normal for the erect position, impaired muscle tone, venous stasis, and an increased tendency to thrombosis Skeletal wasting, joint malposition, stretching of ligaments, anorexia, constipation, and incontinence in the elderly are also penalties exacted by prolonged immobilization in bed Rest in bed is anatomically, physiologically, and psychologically unsound It is surprising how little bed rest is mentioned by medical writers of the 18th and 19th centuries John Hunter spent little time in bed during his various illnesses Hilton's "Rest and Pain," published about 100 years ago, focused attention on rest It must be remembered, however, that most of his cases were inflammatory, such conditions as osteomyelitis and bone and joint tuberculosis did well with rest after other methods had failed In many hospitals today the patient is expected to be in bed The whole organization of the hospital is geared around this, in fact, the patient is a nuisance, particularly to the nursing and medical staff, if he is up and about His relatives are told to take his clothes away In the treatment of the chronically sick patient, rest in bed is often the only therapeutic regimen offered In sentencing a patient to bed a physician reduces the income of the patient and that of the state if it pays him sickness insurance and provides free medical care In addition, the productivity of the nation is reduced if the patient is a wage earner Rest is a far costlier prescription than drugs The irrational prescribing of rest and drugs is harmful not only to the patient but to the national economy and is an extravagance that can be ill afforded

Care of the Aged—The care of the aged, particularly those who are sick and infirm, has become an acute problem in Britain There are more old persons in the community than ever before Chemotherapy has done much to reduce mortality caused by infections, but the number of persons with cardiovascular degeneration and malignant lesions has increased These conditions and the minor infirmities of old age necessitate nursing care Fewer persons are able and willing to look after their aged relatives Overcrowding in the large towns and the high rate of employment of married and middle-aged women are no doubt contributory factors The hospitals, on the other hand, are also reluctant to care for chronically ill persons, particularly if aged, as they need additional nursing care There is still a shortage of nurses in Britain The sick and infirm aged are thus wanted neither at home nor in the hospital As pointed out by Ferguson and MacPhail in their book "Hospital and Community," the aged patient's health may owe far more to his home condition and nursing than to the disease he suffers from or to the medical treatment prescribed The plight of seriously disabled and elderly persons, some living in squalor, is the most compelling problem of old age Some old, sick persons can be satisfactorily treated only in a hospital, but many can be treated at home, and most of them prefer it whenever possible They are reluctant to leave home The district or visiting nurse can often help There is a need for additional beds in hospitals for the "elderly chronic" patient At Oxford a day hospital is being developed where the elderly infirm can be looked after in the daytime The National Corporation for the Care of Old People has had encouraging results from sending old persons to convalescent homes for two months Payment is made under the National Health Service Other efforts have been made to make life easier for the aged, such as the provision of "meals on wheels," laundry services, and chiropody The care of the aged was raised in the House of Commons recently when the Minister of Health referred to it as the most baffling problem of the whole of the National Health Service He thought the solution lay in the home and not in the hospital 'Let us by all means ask if the State has failed," he said, "but let us also ask if the family and neighbours are doing all they can, or the local authorities, the voluntary bodies and the church' The care of the aged is a long-term policy that must be directed to the promotion of healthy living, independence, the provision of an interest in life, and the prevention of ill health

British Empire Cancer Campaign—The Duke of Gloucester presided at the annual general meeting of the Cancer Campaign on June 29 Professor F Dickens presented the annual report and said that research into methods of treatment of cancer was proceeding hand in hand with that on causation Surgery and radiation remain the accepted treatments for most cancers, and in the field of radiotherapy the opening of the new radioactive cobalt (Co^{60}) beam therapy unit has now made available for research the very intense gamma rays After a reference to hormone therapy, he said that the chemotherapy of cancer includes, besides the various radioactive isotopes, the new group of cytotoxic agents, which kill or injure the growing cell by chemical or metabolic interference with certain stages of cellular reproduction One of these is vitamin B_{12}, which causes a remarkable regression in neuroblastomas The study of the action of this group on the living cell and on isolated cell components has shed new light not only on the action of these drugs but also on the biological and biochemical events brought about by radiation itself In spite of heavy taxation and the effects of the National Health Service, donations and collections showed an increase but legacies a decrease, $736,400 had been expended on grants to hospitals and research workers during 1953, and expenditure on the principal objects of the campaign had reached over $840,000, or twice the figure for 1948 The outlay on fellowships had now reached $76,776, covering 15 campaign fellows and an average of five exchange fellows to and from the United States and Canada

Pay Scale for Physicians.—The British Medical Association decided at its annual meeting in Glasgow to set up a committee to examine the pay scale for physicians because criticism of the inadequacy of recent pay increases to hospital physicians had been voiced The committee will consider the earnings of physicians in private and public practice, of consultants, of family physicians, and of those in the Public Health Service, industry, and the armed forces It has been asked to make recommendations designed to establish a general pay policy Some members of the association resent the disparity between the increased pay given to general practitioners under the Danckwerts award and the recent small increases given to consultants in the hospital service Dr P W R Petrie of Edinburgh said the public was getting the idea that physicians were always squabbling among themselves about their slice of the cake The profession should present a united front Dr T Rowland Hill, chairman of the Central Consultants and Specialists Committee, announced that the government had hinted that it would consider raising salaries of senior hospital medical officers soon The meeting asked that an adequate defense fund be established by the consultants It was reported that the consultants had collected only $25 200 for such a fund, but the general practitioners fund stood at $1,400 000

GERMANY

Meeting of the Deutsche Aerztetag—The Deutsche Aerztetag, which held its annual meeting in Hamburg in June, considers only administrative questions while scientific problems are discussed by the meetings of special associations, such as the Deutsche Gesellschaft für Innere Medizin" and the "Deutsche Gesellschaft für Chirurgie" The Deutsche Aerztetag, with Prof Hans Neuffer of Stuttgart presiding, dealt with the coming bill concerning the relations between physicians and sick-funds For about 20 years the fees as a whole have been paid to the local associations of physicians and distributed to the physicians according to a schedule Because even a well-to-do person may now be a member of a sick fund the Deutsche Aerztetag has been trying to restrict the membership to persons earning 7,200 marks a year or less Today only a few people are treated as private patients, 80% of the inhabitants of Western Germany being members of the sick funds

Poisoning by an Insecticide—Some deaths from widely used insecticides have occurred this year The first cases, victims of murder, were followed by a few suicides The substance, a phosphoric acid ester called parathion (E 605), belongs to the group of compounds inhibiting esterase, the effect of which was reported by Adrian, Feldberg, and Kilby in Great Britain and Gremels and Gross in Germany about 10 years ago This compound has proved an important means of studying the action of acetylcholine on the nerve fibers The government and the medical press discussed rigorous regulations in order to prevent further deaths, but as parathion is an almost indispensable insecticide for farmers and is harmless if simple precautions are taken, the authorities agreed to avoid restrictions, otherwise, as Professor Lendle of Göttingen said, the government would have to prohibit the free sale of many commonly used chemicals

Tropaeolum Majus.—In 1951 Prof A G Winter, a botanist of Bonn, detected antibiotic properties in Tropaeolum majus (nasturtium) An extract showed a broad antimicrobic spectrum and no appreciable side-effects The effective substance seems to be eliminated by the kidneys and the lungs Good results have been obtained in the treatment of uncomplicated angina and cystitis with this drug as reported by Dr H Stickl of Cologne at a meeting of the Rheinisch-Westfälische Kinderärztevereinigung in May

The Physiology of Ontogenesis.—The old concepts of mechanical factors regulating the ontogenesis of organisms seem to be outmoded by the detection of endocrine influences Thus a new hormone regulating the development of the silkworm has been prepared by Nobel prize winner Prof Adolf Butenandt and Dr Peter Karlson in a pure crystalline form The investigators made their report at a meeting of the Deutsche Zoologische Gesellschaft at Tübingen in June

NORWAY

Scope of Tuberculin Matriculation.—In 1948 Dr Tobias Gedde-Dahl published a book on tuberculosis infection in the light of tuberculin matriculation His advocacy of tuberculin matriculation soon began to attract attention outside Norway, and an abbreviated edition of his work appeared in the *American Journal of Hygiene* for September, 1952 His system consisted of keeping the whole of a community under tuberculin control by the periodic testing of tuberculin negative persons By such action it should be possible, in his opinion, to discover fresh primary infections and thereby to focus control on a group of heavily threatened persons By tuberculin matriculation it should also be possible to avoid the x-ray examination of uninfected persons Gedde Dahl s original work was carried out on the west coast of Norway in a district heavily infected by tuberculosis His success with tuberculin matriculation in such a district did not, however, convince him that his system would be unsuitable in districts with a low infection rate Indeed, he argued, Tuberculin matriculation is the fundamental principle in tuberculosis control of the future in regions or populations with low infection rates The less frequent the occurrence of tuberculosis, the more selective the method must be"

This teaching has now been challenged by Dr H K Sandberg (*Tidsskrift for den norske lægeforening* 9 317 [May 1] 1954), who speaks for an inland Norwegian district with a rural population living chiefly on farming and forestry and with a total population of about 2 800 This district has ceased to be the tuberculosis ridden and poverty-stricken area it was more than 20 years ago During the last 20 years it has prospered economically and brought its tuberculosis rate down to a record low level Since the school year 1936-1937, every school child in the district has been tested with tuberculin every year, and in the autumn of 1953 all the 303 children in the first six grades were found to be tuberculin negative The 43 children in the seventh grade were also all negative and were vaccinated with BCG (bacille Calmette Guerin) in the spring of 1953 In 1951 and 1952 all the 2 060 persons over the age of 15 were requested to undergo tuberculin testing and 2 004, or 97 3%, did so There were 530 positive reactors, 1,248 negative reactors, and 226 who had been vaccinated with BCG All the 530 positive reactors were asked to undergo a radiological examination, and 510 of them did so The result was the discovery of only one case of pulmonary tuberculosis in a man aged 44 Sandberg credits the discovery of most of the cases of tuberculosis in his district in recent years not so much to systematic, wholesale examinations as to concentrating on suspected cases with repeated Pirquet testing roentgenograms, and examinations of sputum He will continue to test every school child every year with tuberculin and combine such testing with BCG vaccination at the school-leaving age He feels sample testing here and there with tuberculin should also be continued, and persons suffering from protracted colds influenza, bronchitis, and pneumonia should also be tested with tuberculin and given radiological examinations Should a school child become tuberculin positive for the first time, every effort must be made to discover the source of infection in its environment Sandberg argues that the medical profession should not 'bind too great a part of our health machinery to work which gradually gives smaller and smaller chances of positive findings" Time alone will show how much the success of tuberculin matriculation has depended on the genial and forceful personality of its originator and how much on its intrinsic merits The special conditions under which tuberculin matriculation is most effective should also be determined Meanwhile it is a moot point, according to Sandberg whether the aim should be a community with as many tuberculin negative persons as possible or one with as many tuberculin positive persons as possible, thanks to BCG vaccination

Diabetes—In a report on the health of babies born to diabetic women, Dr Arne Kåss points out that while the prognosis for the mother has been profoundly changed by treatment with insulin, the outlook for the child remains unchanged, a fact whose importance is increased by the growing number of such children They are apt to seem perfectly fit at birth, but two or three days later they may suddenly collapse with cyanosis and signs of acute dilatation of the heart Recent observations by Engleson and Björklund of Sweden have suggested that such fatal attacks may be due to the development of hypopotassemia Kass has taken his cue from these observations and has given 0 5 gm of potassium chloride through a stomach tube to an infant who collapsed suddenly when 13 hours old The same dose was given on the third, fourth, and fifth days of life This treatment was indicated by the electrocardiographic evidence of hypopotassemia demonstrated at the time of the sudden collapse The electrocardiographic manifestations disappeared within three hours of the first administration of potassium chloride The further course of the case was uneventful

In an article on diabetes and pregnancy, Dr Artur Voll concludes that the prospect of the offspring of a diabetic parent or parents themselves developing diabetes is so great that it would be well to discourage the marriage of two diabetics or of a diabetic with the child of another diabetic Persons contemplating marriage under these conditions are entitled to factual information if they are foresighted enough to consult a physician on the subject Another study comes from the Ullevaal Hospital, where 147 diabetics were treated in the period 1948 to 1952 In this study, Dr Sverre Aarseth, shows how, thanks to insulin, the mean age of diabetics admitted to hospital has risen Hanssen's study for the period 1936 to 1939 showed that about 50% of Ullevaal's diabetics were over the age of 61, whereas this was the case with 63% of Aarseth's patients Among 98 patients operated on, nine died shortly after the operation, but Hanssen's study also shows how much can be effected by skilled preoperative and postoperative treatment and modern anesthesia He prefers local anesthesia whenever possible, and for amputations he recommends spinal anesthesia or freezing If general anesthesia is required, a combination of nitrous oxide, oxygen and ether is preferred These three studies are published in *Tidsskrift for den norske lægeforening* for July 1, 1954

Epidemic Nephrosis—At the Hedmark County Hospital in Elverum, Dr Bjarne Tungland has undertaken a special study of 26 men and 2 women, who, between Oct 15, 1948, and Feb 1, 1954, were found to be suffering from epidemic nephrosis, a disease that has been observed hitherto only in Finland, Norway, and Sweden The epidemic character of this disease is shown by the fact that most of the cases were confined to the winter of 1948-1949, whereas in 1950 the hospital did not admit a single patient with the disease Epidemic nephrosis occurred only in the dark months of the year, October to April, and its victims were to a great extent woodmen living in primitive huts Most of the patients were between the ages of 20 and 40, and the youngest patient was 11 years old The onset of the disease was sudden, with fever, headache, and pain in the kidney region In 16 patients abdominal pain dominated the clinical picture The most important aid to the correct diagnosis was given by the urine, which was of very low specific gravity Proteinuria was found in all patients but one, and 23 showed azotemia There was polyuria beginning in the second week, and the proteinuria and azotemia passed off after several days The incubation period was two to six weeks All the patients recovered after a stay in hospital ranging from 9 to 55 days A follow-up examination of 10 patients five years later showed no signs of renal disease. Tungland, whose report is published in *Nordisk medicin* for May 6, 1954, suspects that epidemic nephrosis may be a virus disease transmitted by field mice He refers in this connection to Thjotta's examination, with negative results, of several mice from a dwelling in which five members of a family had developed this disease

Quinacrine (Atabrine) for Tenia Saginata—At the Bodo Hospital in the far north of Norway, several patients with tenia saginata infestation have been treated in different ways At first the results were disappointing, perhaps because the extract of filix given was not potent enough All the seven patients who had undergone the conventional course of treatment with capsules of filix and two patients who had been treated with gentian violet had a relapse within a few months These failures led to a trial of quinacrine (Atabrine) on nine patients whose reaction was very satisfactory The slight and transitory yellow color of the skin and scleras was quite harmless, and the tapeworms discharged in response to this treatment formed long, unbroken yellow chains In two cases a dose of 0 8 gm proved insufficient, for, though many segments were discharged, the head was not evacuated, and a relapse occurred When this dose was repeated once or twice in the course of the week there were no relapses Reporting on this treatment in *Tidsskrift for den norske lægeforening* for June 15, 1954, Dr R Nissen Meyer suggests that, when as much as 2 gm of quinacrine are given in the course of two days, it may be possible to dispense with the older ritual of tapeworm treatment with special dieting, castor oil, and enemas that are a great nuisance to the patient

PERU

Tuberculosis Congress—At the Second Peruvian National Congress of Tuberculosis in April, it was reported that the tuberculosis mortality rate in the main cities of Peru is high, but that it has decreased during the period 1942 to 1951 and especially since 1948 The tuberculosis mortality rate in the country as a whole is lower than that of the cities and its decrease in the period under review is less marked This decrease is due to such factors as an improvement in the average standard of living, protective social laws, the increase in the number of health campaigns, especially the antituberculosis campaign, and the increasing use of modern antituberculosis drugs Morbidity rates in the principal cities were found to be 2 or 3% The highest morbidity rates occur among people coming to the cities from the more remote parts of the country to obtain work

The two main problems arising from the use of antibiotics in the treatment of tuberculosis are toxicity and the creation of drug resistant strains of Mycobacterium tuberculosis The combined use of chemotherapeutic agents offers the best results, inasmuch as it increases their therapeutic efficacy, delays the development of drug resistant strains of tubercle bacilli, and diminishes the risks of toxicity The combined use of streptomycin and *p*-aminosalicylic acid or streptomycin and isoniazid gives the best results A *p*-aminosalicylic acid and isoniazid combination is useful in patients with proved resistance to streptomycin The use of a single chemotherapeutic agent may be beneficial under certain circumstances that can only be assessed by the phthisiologist when observing the progress of a given patient Dosage schedules must be fitted to the clinical feature of the illness and conditions of the individual patient under the watchful control of the phthisiologist A hygienic and dietetic regimen, including rest in bed, is also essential The use of chemotherapeutic agents during the pre and postoperative stages in patients undergoing pulmonary collapse or resection diminishes both the number and the gravity of complications Teamwork in well-equipped centers and efficient nursing have decreased mortality among patients operated on

The congress went on record as urging the foundation of a National Institute of Phthisiology It also recommended that. (1) the number of aid centers for tuberculous children be increased and that they admit children up to 16 years of age, (2) dental services be made a part of the antituberculosis campaign, (3) the antituberculosis campaign be extended throughout the country, (4) the National Health Service for Workmen as well as for Employees, build their own hospitals for their insured members, (5) a department of health, education, and propaganda be established within the antituberculosis department of the Ministry of Public Health, and (6) all the tuberculosis services in the country be placed under the direction of the antituberculosis department

SWEDEN

Sarcoidosis.—At a meeting of the Swedish Medical Society Dr Sven Löfgren stated that erythema nodosum provides the most important material for the study of sarcoidosis in its primary stage With the falling incidence of tuberculosis in recent years primary sarcoidosis, rather than tuberculosis, has become the commonest cause of erythema nodosum among adults in Stockholm Mass radiographic surveys in Sweden have shown that 0 5 to 1 per 1,000 of the population suffer from recent or chronic sarcoidosis Lofgren has found that about 50% of the patients suffering from primary sarcoidosis give a positive reaction to tuberculin, whereas the generalized or chronic form of the disease shows a much lower rate of positive reactors His follow up study of 111 patients suffering from primary sarcoidosis and erythema nodosum showed that 102 of them had recovered from their sarcoidosis within two years In the remaining nine patients chronic sarcoidosis had developed, the prognosis for which is relatively poor, with pulmonary fibrosis and cardiac insufficiency often proving fatal after many years Dr E Törnell gave reasons for dissociating tuberculosis from sarcoidosis Among 72 patients with erythema nodosum of tuberculous origin, 37 had a history of extrafamilial exposure to infection and 9 to intrafamilial infection, whereas among 59 patients with sarcoidotic erythema nodosum not one had such a history Tuberculosis was found in the parents or siblings of 11 5% of the patients with sarcoidosis a rate approximating that found in the general population tested by mass radiography The corresponding rate was 35% for known cases of tuberculosis Dr Bo Carstensen of Östersund treated more than 200 patients with sarcoidosis in a period of four years In the spring of 1951 he started treating sarcoidosis with steroid hormones As of Dec 31 1953 he had given 66 patients this treatment, the outcome of which is recorded in tabular form in *Nordisk medicin* for July 15 1954 The treatment of pulmonary sarcoidosis with corticotropin and cortisone cannot as yet be regarded as reliable Use of the drugs is indicated chiefly when the disease is situated in the central nervous system, the heart, and, in particular, the eyes In such cases this treatment may be lifesaving

An Outbreak of Trichinosis—The comparative immunity to trichinosis that Sweden enjoys can largely be traced to the efficiency with which meat inspection is enforced, but the ideal in this respect is not always attainable, partly because compulsory inspection is not always enforced in small communities In the summer of 1953, a small outbreak of trichinosis occurred in Östergötland and was the occasion for a special study undertaken by Dr Sven-Ove Arvidsson and reported on in *Svenska läkartidningen* for June 4, 1954 All the 17 patients were found to have consumed meat provided by one shop, and a farm supplying the shop with pork became incriminated when one of its pigs was shown to harbor the parasite About 1 km from this farm was a fox farm overrun by rats, two of which were also found to harbor the parasite It was learned that the bodies of the foxes slaughtered for their pelts had been buried so superficially that they were accessible to rats The most constant features of this outbreak, which resulted in only one death, were fever lasting from one to four weeks and edema of the eyelids Diarrhea and abdominal pain marked the onset of the disease and lasted for about a week in most patients With only two exceptions involvement of the muscles was indicated by pain and tenderness in both arms and legs Eosinophilia, ranging from 16 to 44%, usually reached its maximum by the end of the third week In spite of high fever, the sedimentation rate was only slightly raised in most patients

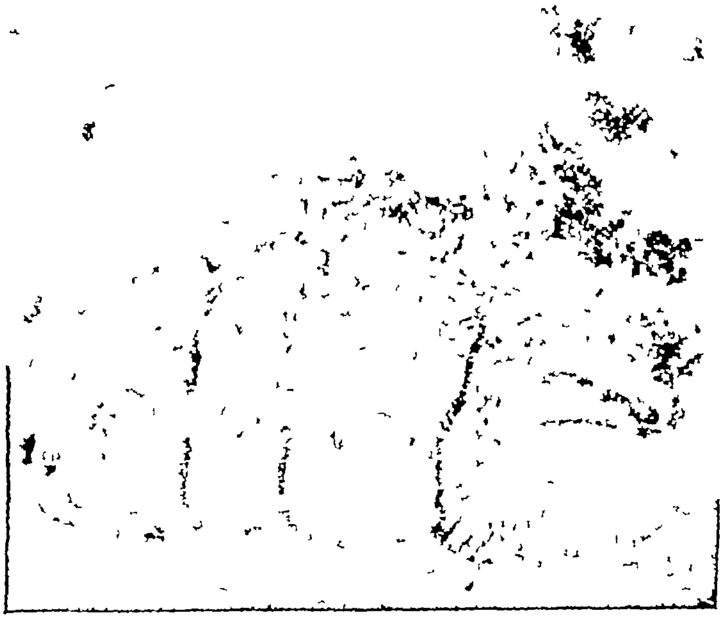
Penicillin Treatment of Acute Gonorrhea—The polyclinic department of the Garrison Hospital in Stockholm treats many patients with gonorrhea During 1952 and 1953, penicillin was given to 367 such patients whose response to this treatment is analyzed by Dr Anders Lodin in *Svenska läkartidningen* for June 25, 1954 As soon as gonorrhea was diagnosed one million units of procaine penicillin were given A direct bacteriological examination was repeated next day and again weekly for four or five weeks, the follow-up control being completed with one to three cultures All the first examinations after the injection failed to reveal gonococci Recurrences were observed, however, in 17 patients In so many of these a new infection was possible that the recurrence should be considered a reinfection rather than a relapse Six patients with prostatitis and vesiculitis and four with epididymitis (always left-sided) required repeated injections of penicillin, totaling 4 to 5 million units Lodin is inclined to reduce his original dose as experiences in the United States and England suggest that just as good results can be achieved with only 300,000 units This dose is probably also sufficient to eradicate any undetected syphilitic infection that might be present. As for the development of penicillin resistant strains of gonococci in response to a too small a dose of penicillin, Lodin doubts the existence of such strains

Artificial Insemination.—The departmental committee of experts appointed by the Swedish government to study artificial insemination failed to agree, and a majority report has now been submitted to the Swedish Medical Society whose criticisms of it are published in *Nordisk medicin* for July 8, 1954 Here it is pointed out that if the majority report were to be accepted, the consequences would undoubtedly be harmful not only to the parties directly concerned, but also to the state Though it may be hard for a barren wife to remain so, the welfare of the child must come first, and it has a right to know who its father is Far too much responsibility is laid on the physician who is expected to choose a suitable donor for heterologous insemination and who must make sure that the donor is in possession of various good qualities It may be difficult to discover a man who is such a paragon of virtue and who is willing to act as a donor and the enquiries set on foot to establish his suitability for semen donation may rob him of some of the anonymity he is expected to enjoy The practice of artificial insemination should in the opinion of the Swedish Medical Society, be forbidden by law, but with this loophole, that it would be possible in special circumstances to give dispensation for breaking the law

CORRESPONDENCE

LYMPHOSTATIC VERRUCOSA

To the Editor —May I be permitted to make a few remarks in relation to a short note published in The Journal (155 1000 [July 10] 1954) regarding lymphostatic verrucosa, which is described by Professor Leon of Quito as probably of infectious origin The symptoms and clinical features as described by Professor Leon are fairly common in China During my 19 years' stay in that country many cases of that type have been observed at the department of dermatology, National Medical College of Shanghai and St John's University Medical School My investigations have been published (Reiss, F Relationship Between Chronic Dermatophytosis of Feet and Recurrent Erysipelas-like Manifestations, *Journal of Clinical Medicine, Shanghai* 3 13, 1938) A short abstract of the article and of additional observation may give evidence that lymphostatic verrucosa is identical with what I termed elephantiasis verrucosa nostras Furthermore, it appears to be evident that the disease is a sequel of recurrent attacks of erysipelas, which may clarify the assumption of Professor Leon that the disease is probably of infectious origin My observations also prove that the disease also occurs among persons who do not live on plateaus 2,400 meters above sea level



Following are the salient features of my observations There is always a history highly suggestive of recurrent attacks of erysipelas Generally one leg is affected, though both may be involved Either one or both legs are enlarged from 2 to 7 in (5 to 18 cm) A fungous infection of the interdigital spaces generally accompanies these changes Such elephantiasic legs show either (1) slightly atrophic, glossy skin, (2) an impetiginous, eczematous surface, (3) lichenified eczematous patches, or (4) warty papillomatous changes (elephantiasis verrucosa nostras) The last type has not previously been described as a sequel of recurrent attacks of erysipelas of the legs associated with chronic dermatophytosis These verrrucous changes generally affect the ankles, the dorsa of the feet, and/or the toes The warty lesions either occur in small groups or form larger confluent plaques surrounded by an inflammatory zone On pressure, a moderate amount of purulent matter can sometimes be squeezed out that is composed of common pyogenic organisms Neither physical or laboratory examination gave any evidence of filariasis, syphilis, tuberculosis, or fungous infection The early recognition of a chronic fungous infection of the feet is emphasized because by its early treatment recurrent attacks of erysipelas and its sequelae could be prevented These consequences are not so readily amenable to treatment and mean not only a permanent deformity of the legs but also a handicap to locomotion The histopathological findings also confirmed that neither tuberculosis or any fungous infection of the chronic granulomatous type caused the changes of moderate to severe hyperkeratosis and akanthosis and edema of the cutis with dilatation of the lymph and blood vessels A predominant round cell infiltration, a number of young fibroblasts, and a few epitheloid cells could be seen, but plasma and giant cells were not observed

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MISUSED EXPRESSIONS

To the Editor —From time to time in this section, a voice is raised in defense of correct medical phraseology This appeal is not made by the purists in grammar, the classicists in language tradition, or the provincial perfectionists who are critical of all terminology except their own It is made by those who have occasion to read manuscripts for publication and who review medical articles and books for the scientific literature It is well, therefore, that at intervals attention should be called to the commoner errors in this field Editors of scientific journals probably wince at some of the material they inspect, and it is well known that some papers presented for publication receive rejection slips because of the misuse of conventional expressions that are presumed to be in good favor If a case report or a medical essay is worthy of being shared by others in the literature, it should be in acceptable scientific terminology

Following are the most commonly misused expressions that occur even in "high places" "The physical examination *revealed,*" "The roentgenogram *showed,*" "The laboratory findings *demonstrated,*" and combinations of these Since inanimate subjects cannot have active verbs, these statements are grammatically and technically incorrect, but they have been absorbed into medical phraseology from one generation of medical students and authors to another The acceptable manner of reproducing the above phrases is "On physical examination there was (were)," "On roentgenograms there were," "The laboratory findings were " The correct usage is by far the simplest and easiest, without the blind acceptance of the hoary and repetitious

Because the words serology, pathology, surgery, and chemistry are the names of specific medical sciences, it should be unnecessary to point out that the common clichés—"the *serology* was negative," "the *pathology* of the tissue was negative," "the patient was prepared for *surgery,*" or "his *chemistry* was normal"—are all quite unacceptable When these words are used in their adjective form, the statements have a *definitive meaning,* as "The serological examination of the spinal fluid was within normal range," or "The patient was prepared for a surgical procedure (or operation) " The frequent statements "The patient was *placed* on penicillin" and "The infant was *put* on evaporated milk" are incorrect because, literally, these acts would be quite messy if really executed as stated The terms administered, given, or fed would be acceptable in the correct expression of such phrases

Many lesser violations of grammar and facile expression could be enumerated, and almost every earnest reader has many pet annoyances that he notes without possible redress Among these are modifying adjectives to definite statement-words, such as "*rather* typical reaction," "*bluish* gray," or "*reddish* brown", all these imply that the writer is not positive of his original meaning Such expressions as "The patient had *no temperature*" and "The urine was *negative*" are obviously intolerable and are all too common misstatements that should not appear in good medical writing or speech The standard and tried argument that common usage justifies the acceptance of these medical "hybrids" violates both technical ethnology and correct nomen clature Their use in good medical writing often depreciates the industry and assiduous effort that the author has invested in his production

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GOVERNMENT SERVICES

AIR FORCE

Award for Research in Space Flight.—For research in the medical aspects of space flight, Hubertus Strughold, M D, head, department of space medicine at the Air Force School of Aviation Medicine, Randolph Field, Texas, has been awarded the Hermann Oberth Medal of the German Rocket Society The presentation was made in August at Innsbruck, Austria, where Dr Strughold was attending the fifth annual congress of the International Astronautical Federation The previous recipients of the medal have been engineers

An early specialist in aviation medicine and high altitude physiology, Dr Strughold was head of the Aeromedical Institute of Berlin before World War II Since 1947 he has been a staff member of the U S Air Force school He received his Ph D from the University of Muenster in 1922 and his M D from the University of Wurzburgh in 1923 He was a fellow of the Rockefeller Foundation in 1928-1929 doing research at Western Reserve University in Cleveland and at the University of Chicago He is a fellow of the American Physiological Society, the Aero Medical Association, the American Association for the Advancement of Science, and Sigma Xi, and a charter member and secretary of the Space Medicine Association

ARMY

Immunization Against Influenza for American Troops.—Army troops throughout the world will be immunized against influenza in accordance with a new inservice policy, Major Gen George E Armstrong, Army Surgeon General, announces All Army troops will be administered the vaccine prior to a Nov 15 deadline before the onset of the usual winter respiratory diseases Troops entering the Army after Nov 15 will be given the vaccine as soon as possible after induction. The new policy regarding immunization against influenza has been agreed to by the Surgeons General of the Army, Navy, and Air Force

Last year, only Army troops in overseas commands were given vaccine for influenza. In years before, Army wide immunization was administered after the first cases of the respiratory disease were detected and identified Using this system, it was not always possible to provide vaccine to protect all troops before the beginning of the season But this year, according to General Armstrong, the Army will immunize all troops before the first outbreaks using a modified vaccine incorporating a recently isolated virus strain "Experience has shown" said General Armstrong, "that effective individual and group protection afforded by immunization with influenza vaccine can be expected only when the vaccine is given in advance of the usual respiratory disease season"

Colonel McNinch Decorated.—Col Joseph H McNinch, newly assigned commander of the Army Environmental Health Laboratory, at Edgewood Md, has been awarded the Oak Leaf Cluster to the Legion of Merit. Colonel McNinch was serving in Japan during the period for which he was decorated. As Preventive Medicine Chief of the Medical Section, Far East Command he was cited for "displaying outstanding professional skill and forceful leadership in an extensive program for the prevention and control of disease within the Far East Command"

DEPARTMENT OF DEFENSE

Annual Military Medicodental Symposium.—The Fifth Annual Military Medicodental Symposium for all armed forces medical personnel of the United States will be held at the Naval Hospital, Philadelphia, Oct 18 to 23, under the sponsorship of the commandant, fourth Naval district. The program has been designed to include professional advances developed by both civilian and military medical services The subjects will be presented by representatives of civilian and armed forces medical personnel who are outstanding in their specialties Special sessions are planned for officers in the medical, surgical, dental, and administrative fields The chief of Naval personnel has approved this symposium for the awarding of retirement point credit to those eligible Naval Reserve medical department officers attending Officers of the medical department on active duty may be given authorization orders" (no expense to the government) in accordance with current instructions Medical department officers on active or inactive duty are urged to take advantage of the opportunity to attend this symposium

VETERANS ADMINISTRATION

Physicians Wanted.—Physicians interested in the care of chest diseases are needed at the 450 bed Veterans Administration Hospital, Kerrville, Texas The hospital, which is located in the hills of south Texas about 65 miles north of San Antonio, has an active and progressive in-service educational program for physicians, with nearly every specialty represented and headed by board men. General practitioners are eligible and will be trained, if necessary, for such position The usual VA benefits and perquisites are available, with salaries up to $10,800 depending on qualifications and experience

A vacancy for a board qualified internist exists at the VA Hospital Montgomery, Ala The chief of the medical service and two section chiefs are certified, as are the other service chiefs An excellent teaching program is continued throughout the year

Places are available for resident training in radiology at the Veterans Administration Hospital, Bronx, N Y Residency is approved for three years training and is supervised by full time, consultant, and attending radiologists, as well as physicists who are representatives of the deans committee of local medical schools Training includes study of the use of radioisotopes Salary ranges from $2,640 to $3,330 per annum Korean war veterans receive extra pay under Public Law 550 Minimum requirements are graduation from an accepted medical school one year internship and American citizenship Those interested should write to Chief of Radiology, Veterans Administration Hospital, 130 W Kingsbridge Rd, Bronx 68, N Y

The Veterans Administration Hospital, Houston, Texas, has vacancies for residents in internal medicine, neurology, pathology, physical medicine, radiology and pulmonary diseases Salaries range from $2,640 to $3 300 per annum The residency programs are sponsored by Baylor University College of Medicine Applicants should write to Dr Lee D Cady, Manager Veterans Administration Hospital, Houston, Texas

PUBLIC HEALTH SERVICE

Hill Burton Projects.—A total of 2,283 hospital and health facility construction projects have been approved under the Hospital Survey and Construction Act in the period July 1, 1947, to June 30 1954 The division of hospital facilities Public Health Service, reports that 1,673 of these projects are now in operation, 521 are under construction and 89 have been initially approved Completion of these projects will add 109,207 hospital beds and 404 health centers to the nation s health resources As of this date 72,684 of these beds and 292 of the health centers are in use. During the fiscal year 1954, 151 projects were approved adding 6 328 beds and 50 health centers One of these projects has already been completed

COUNCIL ON MEDICAL SERVICE

Following is the 10th in a series of articles on state physicians placement services

PLACEMENT OF PHYSICIANS IN MONTANA

STATE CONDITIONS IN GENERAL

Montana seems well supplied with physicians The number of persons per physician in Montana is considerably larger than the national average, but the ratio of one physician to each 1,000 persons places the state in the median position statistically The increase in the number of physicians serving the people of Montana has lagged behind the increase in the population during the past 50 years, but improved methods of practice, better transportation, and other factors have more than offset this small lag The population has increased 141% since 1900, while the number of physicians has increased only 92% This discrepancy is less significant when the actual increases in population and number of physicians are examined At the turn of the century there were 311 physicians serving the population of 245,000, whereas today there are about 600 physicians and 591,000 persons within the state boundaries

Two problems found nationwide related to medical service are (1) poor distribution of physicians and (2) the advancing age of the physician population The advanced age of a large proportion of the physicians practicing in some states, with the concomitant higher death rate and larger proportion of retired or limited-practice physicians, is making inroads on the number of physicians available to serve the persons in those areas Montana, however, is not faced with an age problem Its age distribution compares favorably with a state such as Illinois, in which nearly 75% of the physicians are below the critical age of 60 years In Montana over 73% of the physicians are below the critical age, and nearly 35% of them are below the age of 40 years

The bulk of the population, the large cities, and the Rocky Mountains are in the western part of the state, and the wide open, more sparsely settled areas are in the eastern part The physicians, of course, are concentrated in the western area where the population is dense enough to support active practices Actually, the big problem in Montana is one of distance rather than distribution This distance between patient and physician has caused medical service to take to the air In several places, the physician is using a small airplane to fly into remote territory to reach emergency cases The persons in such places do not demand that a physician locate there, and they are well served when a physician can reach them by flying Air travel is a convenience and time-saver for the physician who can make a trip by air in a matter of minutes that would take him several hours on the surface

HISTORY OF PHYSICIANS PLACEMENT SERVICE

For a number of years the Montana Medical Association has been rendering a service, free of charge, to communities and physicians that indicate a desire for help Shortly after World War II the office of the elected secretary of the society began receiving inquiries from physicians desiring aid in finding locations in which to begin a practice of medicine In time, the communities desiring aid in attracting a physician became aware of the existing service of the society, and more inquiries came to this office Physicians who had become acquainted with the attractions of Montana while in the Armed Forces came seeking help In 1950, the medical society employed its first executive secretary, Mr L R Hegland, and placed the responsibility for conducting the service in his office In March, 1953, the Montana House of Delegates officially adopted resolutions authorizing the activity of aiding physicians and communities through the office of the executive secretary

METHOD OF OPERATION OF PHYSICIANS PLACEMENT SERVICE

The method of operation of the Physicians Placement Service in the office of the executive secretary is governed by the demands on it, which at present are not great This allows Mr Hegland to handle each request individually, writing personal letters in all cases and obtaining information in the same fashion from the physician or community

Requests from Physicians—The bulk of inquiries from physicians come from interns and residents, just finishing their medical training, who intend to set up practice in Montana Occasionally a request will come into the office from a physician desiring to relocate in Montana In a letter of reply, Mr Hegland sends the physician a listing of communities indicating need of a physician, with the names of the persons to contact Simultaneously, he asks questions concerning the physician's educational background and other pertinent subjects, to obtain information that was not contained in the letter of inquiry

When the information concerning the physician is at hand, it is printed in the *Bulletin of the Montana Medical Association*, this is sent to all of the members of the medical society each month The listing is of especial interest to those physicians needing an associate with just the qualifications listed or to one who would be interested in having another physician practice near him if the community could support both practices Such information as the physician's educational background, his preference as to type of practice, and his marital status is of interest not only to resident physicians but also to communities that have indicated a need for a physician by letters of inquiry Consequently, Mr Hegland prepares a list of physicians who are seeking a location, with information on each physician, and mails it to all communities requesting aid Once the initial contact between the physician and the community has been established through these services of the placement office, the responsibility lies with the community for completing arrangements During 1952, about 15 physicians were aided in locating by the placement office Currently, the list of physicians is composed of the names of 25 physicians

Requests from Communities—At present, 14 communities in Montana have indicated need for a physician, in 1952, an estimated 10 communities were aided in securing the services of a physician The most frequent method of request is by letter, but occasionally committees or representatives of communities will visit the placement office in Billings, Mont Other methods of learning about needs of communities for physicians are by referral of community letters requesting aid from the Physicians Placement Service of the American Medical Association It is the policy of the placement service of the American Medical Association to refer requests that it receives from communities to the state medical association, if the association maintains an active physicians placement service It is necessary in each case to evaluate the degree of need and determine that the request is bona fide Mr Hegland accomplishes this by contacting a physician familiar with the community and its medical needs or, when necessary, by a personal visit Then, from the information supplied in each case and from his extensive knowledge of the state, Mr Hegland compiles a description of the location that would be of interest to physicians and includes the name of the responsible person to contact in the community The description of the location is added to the listing of opportunities for practice sent to physicians who contact his office

When first informed of the need of a given community, Mr Hegland uses one of several methods to aid the community (1) if possible, he makes a personal visit to discuss the problems of the community with some of the leaders, (2) when this is not possible, he arranges with a physician from the surrounding territory to perform this service Usually, he writes a letter to the contact person informing him that the placement service office is aware of the situation In this letter he includes a reprint of part of the booklet "Physicians Placement Service, 1950," which was published by the American Medical Association The section reproduced describes what a community can do about its medical care It first urges that the community objectively analyze the situation by answering three prime questions 1 Do the people of the community need and desire a resident physician? 2 Why has a resident physician not already located in the community or why did previous physicians leave? 3 What are the most feasible ways of securing the services of a well-trained physician? Self-analysis provides the answer to the first two questions, and the third is answered in the remain der of the reprint, which offers suggestions The necessity for a hospital or clinic facilities for practicing medicine is pointed out Arrangements that can be made with nearby hospitals are described in the event that the community does not have or cannot support facilities locally that a physician could use It is further pointed out to the community that establishing a practice in volves considerable initial expense, which often prevents a young physician from going into a rural area The community is reminded that office space, housing, and funds for initial expense are needed by a physician, if assistance for obtaining these needs is available, it is recommended that this be made known

So that the community, after considering the factors described in the reprint, may contact the physicians desiring to practice in Montana, Mr Hegland includes in his letter a com plete list of the available physicians, with information on each The community is advised that it should contact these physicians in an attempt to attract one to establish in the area, the community is also advised that it is their responsibility to complete all arrangements with the physician and to support his practice after he locates there From time to time, as a new list of physicians is compiled, copies are sent to the communities interested in obtaining a physician

FUTURE EXPANSION OF PLACEMENT SERVICE

To further develop the Physicians Placement Service a special subcommittee has been appointed from the public relations committee of the Montana Medical Association This subcommittee is to develop informational questionnaires to be executed by physicians seeking locations and communities seeking a physician, so that full information may be available to interested persons In addition, from this subcommittee a panel of visiting physicians is to visit communities that believe they are in need of physicians The panel is to evaluate the actual need, and if the need does exist, the panel will help in obtaining a physician If a physician is not needed the panel will aid the community with suggestions in developing methods for meeting their medical needs, such as organizing an ambulance service or encouraging a nearby physician to hold office hours there each week This part of the program is in the formative stage, it will be a valuable additional service to the state placement program

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Privileged Communications Privilege Once Waived Ceases to Exist—This was an action for damages for breach of a contract for personal services From a judgment in favor of the plaintiff, the defendant appealed to the supreme court, appellate division, first department, New York

The plaintiff was hired as head football coach by the New York Yankees, a professional football team After the contract had run for five months, the plaintiff became ill and was taken to a hospital, where he remained for about one month During this period he was examined by three physicians, two of whom said he had had a coronary thrombosis and one of whom Dr Palatucci said he had never had a coronary thrombosis The defendant admitted that he terminated the plaintiff's employment but contended that such termination was justified because of the plaintiff's physical incapacity to fulfill the terms of the contract. At the trial no medical witnesses were called by the plaintiff However, the defendant called the three physicians who had attended the plaintiff With respect to the first physician, a Dr Kossman who examined the plaintiff on July 24 1951, the plaintiff's claim of privilege was sustained by the trial court When the second physician, Dr Palatucci, who examined the plaintiff on July 20 1951 after his discharge from the hospital, was called by the defendant the plaintiff did not object to the receipt of his testimony The trial court while Dr Palatucci was on the stand advised the plaintiff that he was waiving his privilege as to Dr Palatucci's testimony Nevertheless the plaintiff did not object to the introduction of that evidence Dr Palatucci testified that he had familiarized himself with the hospital records of the plaintiff's case, including the diagnosis of coronary thrombosis by Dr Fischl The defendant then called Dr Fischl, who had attended the plaintiff in the hospital The plaintiff then claimed privilege against the receipt of Dr Fischl s testimony, and the court sustained the objection on the ground that the receipt of Dr Palatucci s testimony did not amount to a waiver as to the testimony of Dr Fischl or the hospital records

We find error in this ruling, said the court The law is well established in this state that the patient waives the privilege as to his physician's testimony by failing to object to such testimony when the physician is called by the other party, and further, that the privilege once waived is waived for all time " The waiver is not confined to the particular physician who testifies, but extends to any other physician who has examined the plaintiff concerning the particular ailment involved Though Dr Palatucci testified that he found an absence of the specified disease, his testimony disclosed that another physician had found it present We think, said the court, that this was a disclosure which could not be recalled This error, which left the jury with only one side of the medical proof on the basic question in the case, requires reversal of the judgment Accordingly the judgment in favor of the plaintiff was reversed and a new trial was granted *Strader v Collins 116 N Y S (2d) 318 (New York, 1952)*

Hospitals in General Suit by Hospital to Recover for Surgical Services of Staff Physician—This was an action to recover the value of hospital and medical services rendered by the plaintiff at the express or implied request of the defendant patient The case was tried in the municipal court of the city of New York, borough of Manhattan

The plaintiff injured his left arm and shoulder in an accidental fall in a theater lobby and was taken to the Beekman Downtown Hospital for treatment He received medical surgical, and hospital care for 22 days and then visited the outpatient department of the hospital for about a month He then had another accident at home as a result of which he injured his right leg He was readmitted to the plaintiff hospital and remained there for a period of 26 days, and the present suit is a claim made for the second period of his hospitalization During this second period of hospitalization, the plaintiff received the routine bed board, and nursing treatment x-rays, physiotherapy treatments, special medicines drugs laboratory services, and special medical and surgical treatment Part of this latter treatment consisted of an operation for the evacuation of a hematoma. An examination of the bill of particulars, said the court, reveals that the defendant at one time or another during the two periods of hospitalization received medical or surgical care from seven physicians and surgeons The defendant conceded that all charges were fair and reasonable and recoverable except those items that were charges for surgical services The objection to these services was primarily based on the fact that the plaintiff was not the real party in interest and that if a recovery was allowed to the plaintiff it would not bar an independent action brought by the surgeon for such services

Concededly said the court the defendant was an ambulance patient treated in the ward of the plaintiff hospital as such he has no freedom of choice or of contract or terms in respect of a physician who attends him at such hospital " It would appear therefore that there is no contractual relationship either express or implied in law upon which any such treating surgeon could predicate a cause of action against a ward patient This principle the court added would apparently not prevail in a private proprietory hospital where an admitting patient selects his own physician and where accommodations are characterized as either private or semiprivate rooms.

Accordingly, therefore the court held that the hospital was entitled to recover for the amount of the surgical services that were rendered to the defendant by the hospital staff physicians *Beekman Downtown Hospital v Murphy 116 N Y S (2d) 341 (New York 1952)*

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Nickerson-Kveim Reaction in Sarcoidosis L E Siltzbach and J C Ehrlich Am J Med 16 790-803 (June) 1954 [New York]

The Nickerson-Kveim cutaneous test for sarcoidosis consisting of the intradermal injection of 0 1 to 0 2 cc of a heat-sterilized suspension of human sarcoid tissue (usually lymph nodes or spleen) into the volar aspect of the forearm, with biopsy of the test area four to six weeks after the injection, was practiced in 80 men and 120 women Fifty-eight patients had sarcoidosis confirmed by biopsy of an involved organ or tissue Eighty patients were suspected of having sarcoidosis, and in 33 of these the suspicion was strong Fifty-four patients had diseases other than sarcoidosis, and they served as controls The remaining eight patients had unclassified granulomatous disorders Results of 571 tests performed on the 200 patients over a seven year period showed that 50 (86%) of the 58 patients with sarcoidosis confirmed by biopsy and 28 (85%) of the 33 patients in whom sarcoidosis was strongly suspected gave microscopically positive responses to the test, having a reaction characterized by the production of tuberculoid granulomas resembling those of sarcoidosis Two of the 54 control patients gave positive responses to the test, an incidence of 4% of false positive reactions, which may be considered a satisfactorily low rate for a biological test Foreign body reactions and nonspecific reactions sometimes interferred with the microscopic reading of the test Suspensions of normal lymph nodes and normal spleen did not elicit a positive reaction in patients with sarcoidosis who did respond to a suspension of sarcoid tissue The Nickerson-Kveim intracutaneous test is a useful confirmatory tool in the diagnosis of sarcoidosis The test is of aid especially when tissues from involved organs are not readily accessible to biopsy The test has growing applicability in differentiating granulomatous conditions In such cases the result of the Nickerson-Kveim test can also be a determining factor in the choice of proper therapy

Malignant Carcinoid of the Small Intestine with Metastases to the Liver, Valvular Disease of the Right Side of the Heart (Pulmonary Stenosis and Tricuspid Regurgitation Without Septal Defects), Peripheral Vasomotor Symptoms, Bronchoconstriction, and an Unusual Type of Cyanosis A Clinical and Pathologic Syndrome Å Thorson, G Biorck, G Bjorkman and J Waldenstrom Am Heart J 47 795-817 (June) 1954 [St Louis]

The occurrence of both pulmonary stenosis and malignant carcinoid of the small intestine is reported in eight men and six women between the ages of 19 and 64 and in two additional patients, whose sex and age were not recorded The simultaneous occurrence of both conditions makes this unsuspected combination a clinical and pathological syndrome and not a pure coincidence The principal findings and symptoms of the syndrome were (1) malignant carcinoid of the small intestine with slow progression and metastases to the liver and to other parenchymatous intra-abdominal organs, common symptoms being dependent edema, frequent watery stools, borborygmi and abdominal pain and rarer symptoms being ascites and pleural effusion, (2) generalized widening of the small vessels of the skin, telangiectases in some patients, and pellagra-like cutaneous lesions in several patients, (3) plethoric coloration and total or partial cyanosis in the absence of polycythemia and a peculiar patchy flushing of the skin, in some cases combined with pilomotor symptoms, (4) pulmonary stenosis of the valvular type and tricuspid regurgitation, and (5) attacks of "bronchial asthma" of a rather unusual type, the chief features of which were cyanosis, "exanthema" over the face and body, and sudden dyspnea Of the 16 patients, 7 definitely had the new syndrome, 4 probably had it, and 5 had partial or not fully verified symptoms The cause of the syndrome is believed to be a malignant carcinoid of the small intestine with hormonal properties and extensive metastases to the liver This concept is based on the fact that the flushes or plethoric discoloration of the skin, which were the most outstanding and easily visible findings, occurred suddenly, showed an irregular distribution and color, and seemed to represent various stages of contraction or dilatation in both precapillary arteries and capillaries During the generalized red flush, quickened heart rate and large pulse pressure often occurred After a period of extensive flushing, there usually followed a period without flush, which may indicate a release of vasomotorically active substances Among substances of this type at present known, 5-hydroxytryptamine (Enteramine or Serotonin) is the one that in its effects seems most likely to correspond with the signs and symptoms of the syndrome It has recently been extracted by another worker in considerable amounts from a carcinoid tumor found at necropsy

Medicinal Treatment of Obesity with a New Type of Hydantoin D Janz and F Bahner Deutsche med Wchnschr 79 846-849 (May 21) 1954 (In German) [Stuttgart, Germany]

Methyldibromostyrylhydantoin (Pesomin) was given to 18 female and 4 male obese patients between the ages of 8 and 52 years The drug was available in sugar-coated tablets of 0 27 gm Five to seven tablets were given daily for several months in two to three single doses with the meals In 21 patients loss of weight was obtained depending on the dose of the drug and on the individual response to the drug Three patients lost up to 1 kg per month, nine up to 2 kg , two up to 3 kg , four up to 4 kg , and three up to 5 kg The greatest losst of weight obtained was 22 5 kg in seven months and 18 kg in four months The daily dose required for most patients was six tablets, but a lasting effect was obtained in several patients with five tablets, while seven tablets daily were required occasionally Of a second group of 19 patients with neurological diseases and normal body weight who were given methyldibromostyrylhydantoin for 3 to 22 months, 6 had an average loss of 1 kg per month, 8 had an average loss of 1 4 kg , 4 lost up to 2 2 kg per month, and 1 patient had no loss of weight The obese patients showed a more pronounced response to the drug than patients with normal body weight To prevent the occurrence of "allergic" reactions, such as pruritus, general weakness, and rash similar to that of scarlet fever, measles, or German measles, associated with fever, swelling of cervical lymph nodes, and eosinophilia, it is advisable to start the treatment with one tablet daily for eight days and to continue with two tablets for the next seven days, three tablets for the next six days, four tablets for the next five days, five tablets for the next four days, and then to give six or seven tablets daily Undesirable side-effects, such as atrophy of gums, gastrointestinal disturbances, agranulocytosis, nystagmus, vertigo or ataxia, were not observed The absence of cardiac or circulatory disturbances such as palpitation or tachycardia was a notable advantage of the drug as compared to active thyroid substances The effect of the new hydantoin derivative did not depend on the cause of the obesity, since loss of weight occurred similarly in patients with genuine and with symptomatic obesity The effect of the drug was manifested by a change in quality of appetite and a diminished sensation of hunger An increase in basal metabolic functions did not occur It is suggested that methyldibromostyrylhydantoin may exert a direct effect on the central regulation The new drug is suitable for ambulatory as

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The place of publication of the periodicals appears in brackets preceding each abstract

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Problems of Diabetes Mellitus: Investigation on Incidence and on Influence of Age and Nutrition on Manifestations of Diabetes Mellitus. V Schliack Deutsche med Wchnschr 79 855 856 (May 21) 1954 (In German) [Stuttgart, Germany]

The author compared the ages and the sex of the population with diabetes mellitus of the cities of Leipzig, East and West Berlin, and Vienna Of the 2 million inhabitants of West Berlin, 11,294 had manifest diabetes mellitus The highest incidence of the disease was observed in the sixth decade of life, predominating in women after the 40th year of life The sex ratio was temporarily changed by the deficient nutrition during the war and postwar period, which had the significance of a mass experiment The number of manifestations depended definitely on the supply of calories The content of fat in the food seemed to have an important part Reports in the German literature on the incidence of diabetes mellitus in postwar Germany differed between 1 and 6 per 1,000 The author s recent study of the incidence of diabetes mellitus among the rural population and the population of small towns in the district of Mecklenburg, Germany, revealed an incidence of 1 5%, i e, the same as that determined by Joslin in North America this suggests a more even distribution of the diathesis than has been assumed so far The large number of previously undetected cases of the disease is stressed, systematic examinations of the entire population revealed for one known diabetic patient five additional persons with diabetes The sociomedical postulate of prophylaxis and early treatment in the primary stage, when regression of the disease is still possible, could be fulfilled if the diagnosis were not left to chance The age and sex specificity revealed by the author s study, the regulatory character of the disease, the hereditary disposition, the relationship to obesity and overnutrition, and the prevention of manifestations of the disease by limiting luxury consumption, make properly directed prophylaxis possible

Long Term Anticoagulant Therapy Further Experiences J Tulloch and L S Wright. Circulation 9 823-834 (June) 1954 [New York]

This report is based on 227 patients treated with anticoagulants as outpatients for at least four weeks consecutively One hundred eighty two received bishydroxycoumarin (Dicumarol) for a total of 59,104 days, and 53 received ethyl biscoumacetate (Tromexan) for 6,743 days Twenty six out of the 227 patients (11 4%) experienced a total of 40 definite or possible thromboembolic complications, while 43 patients (18 9%) had 70 hemorrhagic complications Thirty-three (14 5%) acquired a very high prothrombin time (well over 40 seconds) on 51 occasions without the occurrence of bleeding There were 20 deaths, which, in general, were unrelated to anticoagulant therapy, only one death was caused by hemorrhage There was substantial evidence that the treatment was of benefit to this series of patients It must be remembered that only patients with severe heart or vascular disease who were suffering from recurrent thromboembolic episodes were included (with the exception of eight cases of glaucoma) The authors conclude that, where adequate laboratory facilities are available, outpatient long term anticoagulant therapy may be instituted by any physician familiar with the use of anticoagulant drugs Definite thromboembolic episodes are most likely to occur when the prothrombin time is less than 20 seconds, and hemorrhagic complications are commonest when the prothrombin time is over 40 seconds Minor trauma will induce local bleeding at any level of prolongation of the prothrombin time Vitamin K and, especially, Vitamin K_1 are of value in the treatment of the hemorrhagic complications associated with prolonged prothrombin times (diminished prothrombin activity in the blood) Surgery may, in most instances be undertaken with safety by temporarily lowering the prothrombin time to near the normal level, anticoagulant therapy should be resumed on the first or second postoperative day, if possible

Potassium Deficiency in Congestive Heart Failure Three Cases with Hyponatraemia, Including Results of Potassium Replacement in One Case J H Cort and H L Matthews Lancet 1 1202-1206 (June 12) 1954 [London, England]

Three patients with congestive heart failure, resistance to mercurial diuretics, and hyponatremia were submitted to electrolyte tissue analysis of muscle biopsy specimens These studies showed a large deficit of potassium and overhydration in the cells The sodium content of the cells was also probably increased Two patients died suddenly shortly after biopsy was completed and potassium therapy instituted The third was treated with a high potassium intake and the maintenance of digitalis but no mercurials Balance studies were continued during therapy, and a second muscle biopsy was done 50 days after the first Potassium therapy was associated with the following changes the electrolyte and water composition of muscle was completely corrected edema was decreased, cyanosis disappeared, there was considerable clinical improvement, hyponatremia was corrected and sodium began to be excreted in the urine Hyponatremia appears to be an end stage of a prolonged loss of potassium either caused or complicated by the administration of mercurials, and it is more likely than that potassium deficiency plays a part in the clinical picture of congestive failure and masks the true extent of debility caused by hemodynamic insufficiency alone The question may be raised whether attention to potassium balance should not have a more important part in the treatment of congestive failure

Increased Cerebrospinal Fluid Pressure and Papilledema in Malignant Hypertension R. D Taylor, A C Corcoran and I H Page A M A Arch Int Med 93 818-824 (June) 1954 [Chicago]

In a study of the association of cerebrospinal fluid pressure, diastolic arterial pressure, and papilledema, more than 400 measurements of cerebrospinal fluid pressure were made on 200 patients, 100 of whom had essential hypertension without papilledema, and 100 of whom had malignant hypertension with manifest papilledema No association between diastolic pressure and cerebrospinal fluid pressure was observed in the hypertensive patients without papilledema In the hypertensive patients with papilledema the statistically significant correlation was not sufficient to indicate causation, since patients without papilledema showed elevated cerebrospinal fluid pressure and patients with severely elevated diastolic pressures were often free of papilledema Similarly, in serial observations on patients whose papilledema altered in severity, remitted, or recurred, no close association between these changes and the cerebrospinal fluid pressure could be demonstrated Serial observations of the cerebrospinal fluid pressure in individual patients showed considerable fluctuations in this function, independent of diastolic pressure Papilledema and increased cerebrospinal fluid pressure, like hypertensive encephalopathy, are to be regarded as specific manifestations of hypertensive disease, unrelated as to cause and effect Comparison by means of the Ayala index (used as a relative measure of intracranial tissue volume) between patients with and those without papilledema indicated that papilledema is not associated with any evident increase in brain volume Further, papilledema and increased cerebrospinal fluid pressure cannot be attributed to increased cerebrospinal fluid volume Cerebral blood flow is not increased in patients with severe hypertension If brain volume, cerebrospinal fluid volume, and cerebral blood flow are relatively normal in severe hypertension, increased cerebrospinal fluid pressure observed in many patients with hypertensive disease may, by exclusion, be attributed to distention of cerebral vessels

Antibiotics in Inoperable Renal Tuberculosis. A Kristenson Nord med 51 671-675 (May 13) 1954 (In Swedish) [Stockholm, Sweden]

Five cases with extensive destructive tuberculous changes in both kidneys or in the kidney remaining after nephrectomy are described In three cases there were tuberculous changes in the bladder in four there were pulmonary changes in varying extent, with tuberculous empyema and a tuberculous joint affection in one case Urography, retrograde pyelography, and aortography gave information on the condition of the kidneys Changes in the urine were present in all cases albuminuria, sediment of red and white blood corpuscles in different amounts, and tubercle bacilli demonstrated by direct test, inoculation and culture After *p*-aminosalicylic acid (PAS) treatment followed by treatment with streptomycin, isoniazid, and finally penicillin, subjective and objective symptoms diminished or disappeared The roentgenologic changes did not progress In three cases the urine was normalized The tuberculous pulmonary changes and the tuberculous joint affection showed regression and healing The improvement has been maintained after the end of treatment for several years in three cases and during a shorter observation time in two cases To a large extent Kristenson advocates conservative treatment with intensive chemotherapy in renal tuberculosis, completed if necessary by surgical treatment

How to Prevent Crippling in Rheumatoid Arthritis M Kelly Lancet 1 1158-1161 (June 5) 1954 [London, England]

Why do some patients with rheumatoid polyarthritis become bedridden? Nine out of 10 bedridden patients relate the same sequence 1 The knees became painful and swollen, and the quadriceps muscles wasted away 2 The patient walked less and less 3 He could not straighten his knees 4 He could not walk and took to wheel chair or bed 5 His arms became fixed and his hands powerless The patient takes to his bed for a flexion deformity of the knees If one knee can be straightened, the patient will walk While he can walk and dress himself daily he will do enough to keep his muscles active and his other joints mobile When he stops walking, the muscles waste away, the bones are decalcified, and the joint capsules become fibrosed Prolonged rest in bed is disastrous The patient can be assured that he will walk so long as he can straighten his knees And he can be assured that he will use his hands so long as he prevents his hands from drooping and facing downwards The knee that threatens deformity always has a weakened quadriceps, which must be strengthened Flexion must be avoided The patient should keep the knees straight when he is sitting or lying A very weak quadriceps should be supported by a straight caliper If the knee is not painful or swollen, the caliper may be removed at night, but it is better to wear it continuously for a week or two Flexion always returns with ordinary use of the limb, and it should not be sought by forcible active or passive movements If the patient cannot straighten his knee, it can usually be straightened under anesthesia, the caliper fixed on, and the patient allowed to walk with crutches Swelling of the joint does not contraindicate forcible extension Deformity of the wrist can be prevented by continuous immobilization in plaster splints that allow the fingers to be used and the hand to be rotated Arthritic joints that are immobilized for a few weeks do not ankylose

Mass Oral Penicillin Prophylaxis in Control of Streptococcal Disease S H Bernstein, H A Feldman, O F Harper Jr and W H Klingensmith A M A Arch Int Med 93 894-898 (June) 1954 [Chicago]

Approximately 5,500 recruits received prophylactically 250,000 units of penicillin orally twice daily for 10 days, while a similar number of recruits served as untreated controls The Group A Streptococcus disease rates before penicillin prophylaxis was instituted were 13 per 1,000 per week in the group to be treated and 17 per 1,000 in the control group The hospital admissions for streptococcic disease diminished sharply within 48 hours in the treated group, the disease rate for that week was 2 per 1,000 and the following week, 1 5 per 1,000 In contrast, the equivalent rates in the control group were 13 per 1,000 per week and 11 per 1,000 per week The streptococcic disease rate in the treated group was maintained at a lowered level for the next five to six weeks In a second mass penicillin trial performed three months later, the prophylactic effect of the antibiotic was similar to that observed in the preceding trial, and the disease rate fell from 10 per 1,000 per week to less than 1 per 1,000 per week The percentage of positive cultures obtained from the throats of apparently healthy trainees were affected similarly in both mass penicillin trials The incidence of untoward reactions to penicillin was extremely low during both field trials Since the serologic types that were found in the hospitalized patients with streptococcic pharyngitis remained constant, it appears that the mass prophylaxis suppressed but did not eliminate the offending organisms Although the data reported demonstrate that 250,000 units of penicillin orally administered twice daily will effectively control a group A Streptococcus epidemic in a closed population, it is evident that the optimal dosage schedule still remains to be determined

Epidemic Nephropathy. B Tungland Nord med 51 635 639 (May 6) 1954 (In Norwegian) [Stockholm, Sweden]

Epidemic nephropathy, observed only in Finland, Sweden, and Norway, was unknown until 30 years ago It is an acute infectious disease with special affinity for the kidneys and occurs only in the winter months There is transient renal insufficiency with isohyposthenuria and azotemia The disorder sets in suddenly, often with fever and chills In Hedmark District Hospital, from late 1948 to 1950, 28 patients (26 males, two females) were treated under the diagnosis of epidemic nephropathy Half the patients were woodsmen Headache and backache were the commonest symptoms, in 16 cases intense abdominal pain dominated the picture Transient impairment of vision occurred in three instances All but one of the patients had proteinuria lasting an average of 11 days Polyuria, beginning in the second week, lasted about a week The diagnosis on admission was usually acute nephritis or epidemic nephropathy The influenza like character of the disorder suggests a virus infection Evidence points to transmission by rodents, but the disease has not yet been demonstrated in mice Treatment consisted of rest in bed and diet low in protein and salt The prognosis is believed to be good Follow-up of 10 patients after five years revealed no renal injury

Functional Disorders of the Intestinal Tract. H. I Sippy Rocky Mountain M J 51 512-516 (June) 1954 [Denver]

Sippy feels that the term "irritable bowel" or, more particularly "irritable colon," has been the subject to the erroneous interpretation that only the colon is concerned in these conditions Physiologically and anatomically, the small intestine is fully as vulnerable as the colon to instability and derangement Nervous irritability, abuse by cathartics or enemas, and fermentation are the chief causes of bowel dysfunction, but in addition there are numerous accessory causative factors These include chilling either by external exposure or ingested material, infections, especially the toxins of respiratory infections often misnamed "intestinal flu", emotional crises, fatigue, endocrine disorders, allergic reactions, and excessive intake of highly laxative foods, such as cabbage, sauerkraut, corn, and many fruits or fruit juices The leading symptom of a functional bowel disorder is usually abdominal distress This tends to be variable in location and degree When in the left upper abdomen, it sometimes radiates upward into the chest and arouses suspicion of a cardiovascular source The distress is intermittent or remittant with a tendency to recur over prolonged periods Descriptions vary from vague discomfort and sensations of fullness to violently cramping colic Some relief is usually obtained by applying heat to the abdomen, or taking hot foods and drinks, and by defecation, belching, or the expulsion of flatus Constipation, diarrhea, flatulence, anorexia and nausea are other manifestations of irritable bowel These functional bowel disorders are extremely prevalent, and their recognition and treatment are grossly neglected Physical examination reveals little except a tender and sometimes rope like colon Diagnosis is accomplished largely by exclusion of organic disease Treatment must be individualized

Clinical Criteria and Surgical Indications for Treatment of Duodenal Ulcer. F Soave Minerva med 45 922-926 (April 4) 1954 (In Italian) [Turin, Italy]

Approximately 86% of patients with duodenal ulcer recover in from 8 to 15 months with adequate medical therapy and an appropriate diet In the remaining 14% surgery must be done It is a clinical error to continue medical therapy when this has not given good results in 6 to 15 months The ulcerative process will progress, and hemorrhage, pancreatitis, duodenal obstruction, and painful syndrome in the right upper part of the abdomen may develop Hemorrhage is one of the commonest complications of duodenal ulcer It is generally controlled with conservative treatment in patients between the ages of 25 and 35 years except for 4.5 to 5% of cases Soave postpones the subtotal gastrectomy in these patients until the hemorrhage has been checked Because a sclerotic process of the arteries may be present, the hemorrhage may be severer and more difficult to control medically in patients over 45 years of age In these, one should assume that a branch of the pancreaticoduodenal artery or of the left gastric artery is eroded by the process, and the most rational intervention is simple ligation of the bleeding vessel This should be done rather soon Surgical intervention is urgent for patients in whom, despite transfusions, the circulating blood has reached values below 60% of the total volume Another complication of duodenal ulcer is pyloroduodenal obstruction Soave states that at the University of Genoa surgical clinic subtotal gastrectomy according to Polya is the intervention of choice for duodenal ulcer This intervention and the one of Hofmeister reduce to 2 to 3% the dumping syndrome symptoms According to some authors this condition is caused by a sudden distention of the anastomosed jejunal loop others say that it is the result of too rapid a passage of undigested food into the jejunum A complication of subtotal gastrectomy is pancreatitis of the head of the pancreas This is not a severe complication of itself, but the tryptic ferments may digest the catgut that was used to suture the duodenal stump If this is not completely healed an external biliary fistula or biliary peritonitis may result Vagotomy, alone or combined with gastroenteroanastomosis does not give satisfying results in the treatment of duodenal ulcer It may sometimes be indicated for patients in whom disturbances continue to be present after they have undergone a gastroenteroanastomosis and a resection If the disturbances were due to the cephalic phase of the gastric secretion the patient will benefit from the operation Vagotomy alone should never be used in the treatment of duodenal ulcer

Treatment of Leukemia J H Burchenal Bull New York Acad Med 30 429-447 (June) 1954 [New York]

The therapeutic agents available for treatment of leukemia are irradiation and chemotherapy In acute leukemia the sequential use of the antimetabolites, amethopterin aminopterin and 6-mercaptopurine and the hormones, corticotropin and cortisone may be expected to produce beneficial effects with an increase in survival time in a high percentage of children Definite but less frequent beneficial effects have been noted in adults with mercaptopurine The author makes a plea for the treatment of all cases of acute leukemia Too often the attitude is that there is no cure for the disease The answer to that is fourfold the untreated patient does not usually die in peace but frequently suffers many painful complications under therapy many of these children can live happy lives, continuing in school and playing as normal children, during this time the family have time to adjust to the situation, and, most important, if these patients can be kept alive for another year or two, who can say that some investigator somewhere will not come forth with a really effective agent to control the disease? In chronic myelocytic leukemia Myleran (1,4-dimethanesulfonyloxybutane), triethylenemelamine (TEM), urethane arsenic, and the nitrogen mustard HN are useful chemotherapeutic agents, 6 mercaptopurine is still under evaluation in this form of the disease and may prove to be of considerable value The treatment to be used in chronic myelocytic leukemia depends largely on the available facilities If adequate equipment and personnel are available, radiation therapy either by local or total body x ray or phosphorus 32 therapy offer perhaps a wider range of applicability and technique than any of the chemotherapeutic agents In chronic lymphocytic leukemia, the only chemical agents of value are the mustard derivatives, triethylenemelamine, nitrogen mustard HN$_2$ the hormones and possibly urethane Specific therapy is only one aspect of the therapy of leukemia Transfusions should be given as often as necessary to combat anemia, and antibiotics should be employed whenever serious infection threatens the patient The maintenance of morale is also an important factor, and for this reason the patients should be allowed to live as normal a life as possible Most patients with chronic myelocytic leukemia can continue to work up to within a month or two of the time of death

Leukemia in Atomic Bomb Survivors: I. General Observations R D Lange, W C. Moloney and T Yamawaki. Blood 9 574-585 (June) 1954 [New York]

Seventy-five established cases of leukemia occurred in atomic bomb survivors in Hiroshima and Nagasaki up to Dec 31, 1952 There were 38 men and 37 women The leukemogenic effects of radiation were manifested equally in both sexes and at all age levels represented in this series In the 76,891 survivors who at the time of the bombing were at a distance less than 2,500 m from the point on the ground immediately below the bomb burst (hypocenter), 65 cases of leukemia were found, while in the combined total of 159,285 persons who were beyond 2,500 m and survived in both cities, there were only 10 cases of leukemia. These data indicate a great increase in the incidence of leukemia among atomic bomb survivors due to a single massive exposure to ionizing radiation Concerning the type of leukemia occurring among atomic bomb survivors, 31 (41%) of the 75 patients had chronic myelogenous leukemia and 20 (26%) had acute myelogenous leukemia, while only one case of chronic lymphatic leukemia was observed among the 75 exposed survivors The preponderance of chronic myelogenous leukemia as compared with chronic lymphatic leukemia in the exposed survivors is striking but it is pointed out that chronic lymphatic leukemia is comparatively rare among the Japanese Cases of leukemia are still appearing in atomic bomb survivors There has been a steady decline in the number of cases since 1950

SURGERY

Surgical Treatment of Hypertension J E Thompson and R H. Smithwick Cincinnati J Med. 35 203-207 (June) 1954 [Cincinnati]

During the past 15 years Thompson and Smithwick studied 3,500 patients with hypertension Over 2,400 of these have been operated on, and the rest have been treated medically One thousand two hundred sixty-six surgically treated patients and 467 medically treated control patients have been followed five years or longer The authors classify hypertensive patients into four groups by assigning a numerical value to each of several factors that determine the prognosis The numerical value of one is applied to an abnormal electrocardiogram, an enlarged heart, impending congestive failure, mild angina, age over 50, a cerebrovascular accident without or with minor residual, and phenolsulfonphthalein excretion of less than 25% in 15 minutes or less than 60% in 2 hours The value of two is applied to cerebrovascular accident, with residual, frank congestive failure, moderate angina, phenolsulfonphthalein excretion of less than 20% in 15 minutes, and unsatisfactory response to sedation A numerical value of three is assigned to phenolsulfonphthalein excretion of less than 15% in 15 minutes Nitrogen retention is given the numerical value of four In the patients of the first two groups the numerical values total up to less than four and in those belonging to groups 3 and 4 the values total 4 or more. The authors used thoracolumbar splanchnicectomy in 93% of surgically treated patients with essential or malignant hypertension The remaining patients were treated by transthoracic sympathectomy The sympathetic trunks are removed from D[illegible] to L$_1$ inclusive, together with the greater and lesser splanchnic nerves It was found that the mortality rates in all four surgically treated groups were significantly lower than those of corresponding medically treated groups This was especially so for groups 2 and 3, where the differences are highly significant Group 1 patients are usually treated by diet and drugs but the authors feel that surgery may be employed in this group for young male patients with high resting diastolic blood pressure levels (above 110), or those with intractable symptoms for women with a history of toxemia or other complications of pregnancy associated with hypertension who desire more children and for those who for various reasons are unable to follow a medical regimen

For group 2 and group 3 patients splanchnicectomy is the treatment of first choice In group 4 cases surgery may be recommended, provided renal function is adequate The one positive contraindication to splanchnicectomy is severe kidney damage as indicated by persistent evidence of nitrogen retention

Congenital Hernia of the Diaphragm with Report of Three Cases W A Arneson South Dakota J Med & Pharm 7 167-171 (June) 1954 [Sioux Falls, S D]

According to Arneson there are several types of congenital diaphragmatic hernias This discussion is limited to the posterolateral or pleuroperitoneal type, which comprises 90% of all these hernias More than 80% of these occur on the left side, and almost all have no hernial sac The involved chest cavity is completely filled with intestine and other abdominal viscera with resultant collapse of the lung and displacement of the heart to the opposite side Posterolateral hernias may produce symptoms referrable to the circulatory, respiratory, or gastrointestinal systems, as shown by cyanosis, dyspnea, or vomiting The majority of the infants have symptoms immediately after birth, but others are able to tolerate the gross displacement of organs for many months with few symptoms On physical examination breath sounds are slight or absent, but intestinal peristaltic sounds may be heard, and the abdomen may be scaphoid In the presence of these signs, a chest roentgenogram will make the diagnosis conclusive by showing intestinal loops replacing the lung and displacing the heart Although barium by mouth will give a dramatic picture, it should be avoided, since it is unnecessary and may cause intestinal obstruction Before operation these infants should be properly hydrated and the intestinal tract should be deflated Operation should be undertaken within 24 or 48 hours An abdominal approach is preferable to a thoracic one In the peritoneal cavity a catheter may be inserted into the chest through the hernial opening to allow air to enter the pleural space This facilitates removal of the stomach and intestines from the chest and prevents their being sucked back in while being delivered The order of delivery is first the stomach, then the small intestine and then the colon and spleen They should be kept outside the abdomen in warm moist packs while the hernial opening is closed A malrotation should be corrected if present Two of the three infants, whose ses are presented, survived the operation Literature reports ndicate that since 1940 the survival rate has been 90%

Disturbances of Anastomosis in Billroth 1 Stomach H Schumann Beitr klin Chir *188 316-327 (No 3) 1954* (In German) [*Munich, Germany*]

The original Billroth 1 operation was performed on 430 patients with gastric ulcers, or on 56% of all patients operated on for ulcers of the stomach at the surgical department of the Southern City Hospital in Lubeck, Germany, since 1936 Compared with the Billroth 2 technique, the Billroth 1 operation has the advantage of restoring the physiological function of the stomach to nearly normal by restoring the continuity of the stomach to small intestine course Evacuation disturbances during the first postoperative days depend on the technical difficulty of performing a satisfactory anastomosis between the large lumen of the stomach and the small diameter of the duodenum, but experience makes possible correct estimation of the wound of the stomach to be kept open at the larger curvature Early and frequent irrigation of the stomach is the method of choice for preventing atony of the stomach stump The sanguinous fetid secretion of the stomach favors delay in evacuation during the first postoperative days Technical difficulties of suture occur most frequently at the posterior lip of the anastomosis The patient should be discharged from the hospital only after roentgenologic examination reveals proper evacuation of the stomach stump Complaints of deficient evacuation by the patients after returning to their homes may be caused partly by the diet and partly by the mental state The dumping syndrome, which frequently causes much suffering to patients operated on according to Billroth 2 technique, did not occur in patients subjected to the Billroth 1 operation Recurrence of the ulcer was observed in 6 (1 5%) of the 430 patients The aspect of the recurrent ulcer was typical in that it was limited to the duodenum and originated in the suture line between the duodenum and the stomach In most cases, the recurrent ulcer penetrated into the pancreas, and more rarely into the liver The location of the ulcer suggests a peptic cause, the gastric juice apparently meets the duodenum in the area adjacent to the suture point, in a condition of lessened resistance The author believes that duodenal adhesions combined with continued positive production of acid in the residual stomach are of pathogenic significance in anastomotic ulcers A positive acid curve suggests an inadequate resection of the stomach Resection of two thirds of the stomach is considered adequate, and may be performed safely according to Billroth 1 technique without the risk of tension on the suture The Billroth 2 operation is preferable in patients with duodenal ulcer and ulcer of the pylorus

Experience with Mitral Commissurotomy W D Close J Indiana M A *47 600-605 (June) 1954 [Indianapolis]*

Mitral commissurotomy was attempted in 33 women and 20 men between the ages of 16 and 59 years, the average age for women being 35 years and for men 32 years On the basis of the clinical picture including history, physical examination, roentgen ray examination, electrocardiogram, and occasionally cardiac catheterization, the 53 patients were grouped as follows 28 (53%) were patients with pure mitral stenosis, and their symptoms were such that they would be placed in class 2 or 3 in the functional classifications suggested by the New York Heart Association (group B), 15 (28%) were patients with combined mitral stenosis and mitral insufficiency in whom it was thought that insufficiency was contributing little to the patient's disability and who were in class 2 or 3 (group C), 10 (19%) were patients whose lesion was predominantly an insufficiency or patients with predominant mitral stenosis who are placed in class 4 (group D) None of the author's patients was placed in group A, composed of those with rheumatic valvular disease who are essentially asymptomatic Of the 53 patients, 4 died postoperatively while they were still in the hospital and one died during the surgical intervention None of the patients died after leaving the hospital One death resulted from a cerebral embolus, one from a torn ventricle, and three from cardiac insufficiency The over-all mortality was 9%, and by groups the mortality rate was 8% in group B, 30% in group D, and there was no death in group C Of the 48 patients who survived the surgical intervention, 2 had auricular or atrial clots that were so extensive and fixed that the atrium could not be entered, 8 patients were operated on only three months ago and, therefore, evaluation of the results is not yet possible Of the remaining 38 patients who were followed for 4 to 25 months after the operation, 26 (67%) obtained good results and 12 (33%) poor results Some patients are markedly improved and some have returned essentially to normal The expected duration of the improvement or whether any are cured is unknown It is not known whether stenosis will re-form or not There is some evidence that it may re-form There is a definite mortality and morbidity even in the best selected cases The classification of patients in groups A through D as described was a definite help in determining the advisability of surgery and in prognosticating the results and mortality Patients in group B will probably receive a good result Patients in group C may receive a good result Patients in group D should probably not be operated on except for rare cases Patients in group A should not be operated on now, but should wait until the procedure has been fully evaluated

Surgery of the Thymus Gland Second (and Third) Thoughts G Keynes Lancet 1 1197-1202 (June 12) 1954 [London, England]

In discussing the question of whether thymectomy is beneficial to patients with myasthenia gravis, the author stresses the importance of distinguishing between those with thymic tumors and those without The former group present a distinctly different clinical picture and therapeutic problem, they are better treated by roentgenologic methods followed by operation than by primary thymectomy When the latter group is considered separately, it is seen that in those patients treated surgically the results are superior to those in patients treated medically The author has operated on over 200 patients 21 of whom were children between the ages of 2½ and 16 Laboratory experiments performed by Wilson on some of the thymus glands removed from these patients yielded a potent extract having a neuromuscular blocking action similar to that of tubocurarine This has been demonstrated both in vitro and in vivo It appears that the thymus gland is the primary source of this active substance not simply a storage organ, in view of the virulence of the neuromuscular failure associated with epithelial tumors of the gland

Evaluation of Surgical Treatment for Disturbances of the Thyroid Gland M Nordland and M A Nordland A M A Arch Surg 68 794 799 (June) 1954 [Chicago]

Of 1 473 patients subjected to thyroidectomy, 861 had variable degrees of hyperthyroidism, in the form of true toxic diffuse goiter (Graves s disease), toxic diffuse goiter, and nodular goiter Twenty-one of the 861 patients were children In the management of patients with hyperthyroidism, as seen today, the thiourates will have a definite small place as a preoperative measure Patients with very mild hyperthyroidism are still prepared for surgical intervention with strong iodine solution (Lugol s solution) alone Surgery is still the treatment of choice in most of the patients with goiter, including those with hyperthyroidism Surgery of the thyroid is safe, and technical complications can usually be averted with a technique aimed mainly at hemostasis Proper hemostasis makes possible a faster, neater, cleaner and more practicable operation offering better protection to the laryngeal nerves and parathyroid bodies The justification for the preliminary application of a ligature to the inferior thyroid artery is the simplicity and speed with which it is accomplished It was shown by the authors' dissections and by other workers that the inferior thyroid artery is uniformly larger by one-third than the superior thyroid artery in both normal and disturbed glands It was demonstrated experimentally by Enderlen and Holtz that the blood supply of the parathyroid is not interfered with even after the ligation of all four thyroid arteries at their points of origin Ligatures were applied to the four thyroid arteries preliminary to thyroidectomy in the authors 1,437 patients and no damage was done to the parathyroid bodies The generous collateral circulation established between the internal laryngeal, internal mammary and transtracheal vessels together with the preservation of the posterior capsule over the trachea, left an adequate blood supply to the parathyroids Proper hemostasis prevented postoperative hemorrhage and made possible a more rapid convalescence a more permanent cure with much less drainage and, as a result, a better scar

Diagnostic Paracentesis in the Acute Abdomen C T Thompson and D R Brown Surgery 35 916-919 (June) 1954 [St. Louis]

Abdominal paracentesis carried out with an ordinary 22 gauge spinal needle or preferably with a Potter needle proved to be an important adjunct in the diagnosis of an acute condition in the abdomen in about 300 patients The site of the puncture was usually about 3 cm superior and medial to the anterior superior iliac spine The needle was directed medially into the peritoneal cavity In blunt injuries of the abdomen primarily including ruptures of the liver and spleen, which are difficult to evaluate paracentesis may present a concrete indication for laparotomy This is particularly important in patients with concomitant head injuries and crushing chest injuries Patients severely ill with an acute abdominal emergency may be spared an unnecessary and even contraindicated laparotomy if the diagnosis of acute pancreatitis or primary peritonitis can be established Evaluation of the peritoneal fluid frequently makes the diagnosis Needle perforations of the intestine are rare and when they do occur, are of no consequence In the 300 punctures reported on, no complications ensued In only one patient who was in stupor caused by a head injury was an unnecessary laparotomy performed Repeated needle aspiration revealed partially clotting blood from the right lower quadrant Subsequent laparotomy revealed three needle holes in a very low right lobe of the liver extending to the iliac crest.

Duodenal Ulcer Complications Controversial Problems in Surgical Management C C Craighead J Louisiana M Soc 106 197-202 (June) 1954 [New Orleans]

Craighead discusses surgical management of complicated duodenal ulcer on the basis of 623 patients admitted to Charity Hospital in New Orleans during the years 1951-1953 One hundred seventy of these had uncomplicated ulcer 33 had penetration 93 obstruction, 229 hemorrhage and 98 perforation Indications for surgery are hemorrhage perforation, and obstruction Penetration into the pancreas is perforation When a patient with ulcer has continuous pain radiating through to the back unrelieved by food and ulcer medication, he has a perforation A person under 20 or over 60 having a complicated ulcer should have an early surgical appraisal Continued severe bleeding is an urgent indication for emergency operation If no point of bleeding is found subtotal gastrectomy is favored Perforation of an ulcer signifies intractability, and resection should be carried out Gastric resection of 70% or more of the organ accompanied by gastrojejunostomy is a more satisfactory procedure for duodenal ulcer than is gastroenterostomy and vagotomy, or resection with gastroduodenostomy or any other procedure now being employed, with the possible exception of combined gastric resection and vagotomy A combination of two procedures that effectively abolishes cephalic and antral phases of secretion has considerable promise The two common aftermaths of gastrectomy are dumping and recurrent ulceration Abnormal shift of potassium and other electrolytes has been noted in the dumping syndrome Gray s hypothesis of an adrenal hormone acting directly on the remaining gastric glands to increase acid secretion may account, at least in part, for gastrojejunal ulcer after gastrectomy Forty (6 4%) of the 623 patients died The mortality rate in 83 patients treated with simple surgical closure of a perforated ulcer was 2 2% The over-all mortality rate in bleeding duodenal ulcer was 9 2% Twenty per cent of those operated on during active hemorrhage died Subtotal gastric resection with gastrojejunostomy, including those who had emergency surgery, carried with it a 5 4% mortality

Follow Up of 95 Ulcer Patients After Gastrectomy with Special Regard to Course of Late Postoperative Complications L K Hansen and N J Thomsen Ugeskr laeger 116 726-730 (May 13) 1954 (In Danish) [Copenhagen, Denmark]

Of the 95 patients with gastric or duodenal ulcer operated on in Herning Hospital from 1939 to 1951 in 74 cases by Billroth 2 in 21 cases by Billroth 1 there were six times as many men as women Most of the patients were engaged in heavy manual labor The indications for operation were chiefly inability to work because of pain and in 35 cases pyloric stenosis Operations for perforating ulcer and bleeding ulcer on vital indication are not included Seven postoperative deaths occurred and one patient operated on again after three years because of peptic ulcer and gastrocolic fistula, died from peritonitis Four patients died from causes not related to their ulcers, and five could not be traced The remaining 78 patients were examined after an observation period of from 2 to 14 years Of the 67 fully able to work 32 tolerated any diet and 35 had mild dyspeptic symptoms An additional patient was well after vagotomy for peptic ulcer in the jejunum Two of the remaining 10 with reduced working capacity showed signs of dumping syndrome The results of control examinations in 54 of the 78 patients, carried out mostly during the first year after operation and information obtained in the follow up in 1953 seem to show that late postoperative complications appeared mainly within the first year after operation

Chylothorax Following a Blow to the Abdomen C Baron and M Reardon J Thoracic Surg. 28 11-14 (July) 1954 [St Louis]

Successful ligation of a ruptured thoracic duct was carried out with complete cure in a boy of 7 who had been punched in the abdomen by a younger boy A search of the literature failed to reveal any other case with the same causal factor It is suggested that the blow may have ruptured the thoracic duct at a congenitally weak or defective area This possibility should be kept in mind when injuries of this type occur, especially in boxing

Pheochromocytoma Clinical Aspects and Surgical Results. W F Kvale, J T Priestley and G M Roth A M A Arch Surg 68 769-778 (June) 1954 [Chicago]

Of 25 patients with pheochromocytoma causing hypertension, the tumors were considered to be functioning paroxysmally in 14, because intermittent attacks of hypertension dominated the clinical picture and the blood pressure was normal or only slightly elevated in the interval between the attacks The tumors of the remaining 11 patients were considered to be functioning continuously because the hypertension and symptoms were persistent Multiple tumors were commoner in patients with sustained hypertension than in those with paroxysmal hypertension A total of 18 tumors were removed from 9 of the 11 patients with sustained hypertension, and 16 tumors were removed from the 14 patients with paroxysmal hypertension The tumors of two of the patients with sustained hypertension were not removed Of the 34 tumors that were removed, 23 arose from the right adrenal gland, 9 from the left adrenal gland, and one was extra-adrenal in origin All 14 patients with paroxysmal hypertension were relieved of their paroxysmal attacks after operation, and none of those followed adequately had a recurrence of attacks Of the 11 patients with sustained hypertension, 4 had malignant pheochromocytoma with local invasion or distant metastases or both, 3 patients died, but one is still living Of the remaining seven patients, three had sustained hypertension group 4, of the three, one died as a result of metastases, the hypertension of another reverted to group 1 six years after the operation, and the third patient had nearly normal blood pressure and normal vision Of the four patients with hypertension group 3, one had hypertension group 2 on follow-up, one had an essentially normal fundus three years after the operation, one had normal blood pressure one year after the operation but no funduscopic examination was performed, and one stated that his blood pressure is normal Results after removal of a pheochromocytoma that caused intermittent hypertension were uniformly good Likewise, results after removal of a benign tumor that caused sustained hypertension were good If the tumor is malignant, recurrence and metastasis may be responsible for death of the patient, results with regard to hypertension, however, are good Diagnosis of paroxysmal or of sustained hypertension caused by pheochromocytoma may be difficult to establish The authors observed that histamine is the most reliable drug for use in diagnosing pheochromocytoma that causes paroxysmal hypertension, and phentolamine (Regitine) hydrochloride and piperoxan hydrochloride are the most valuable drugs for use in diagnosing pheochromocytoma that causes sustained hypertension Careful and repeated observations of the blood pressure in the course of surgical intervention for pheochromocytoma are essential, and appropriate depressor and pressor drugs should be available for prompt administration during operation Hypotension commonly follows removal of a pheochromocytoma and requires treatment with pressor agents

NEUROLOGY & PSYCHIATRY

Chromosomal Sex in Transvestites M L Barr and G E Hobbs Lancet 1 1109-1110 (May 29) 1954 [London, England]

It has been demonstrated that the nuclei of females contain a special mass of chromatin, the sex chromatin, which is rarely seen in nuclei of males For reasons that are not entirely clear, although the small size of the Y chromosome may be partly responsible, the XY sex-chromosome complex of male nuclei does not produce a mass of sex chromatin of comparable size Moore and associates in 1953 showed that human epidermal nuclei are quite suitable for this investigation Most students of sexual deviation feel that transvestites differ from homosexuals and from the fetishists in that the desire to appear in clothes, which are contrary to the somatic sexual development, is the primary manifestation of the transvestite, whereas in homosexuals and fetishists other factors are primary The male transvestite feels that he is a woman who has, through some fundamental error in development, acquired the anatomical features of a man Skin biopsy specimens were studied in five cases of male transvestism In each case the epidermal nuclei had a typical male morphology, whence it is inferred that these five patients bear the male XY sex-chromosome complex. Though it is now reasonably certain that male transvestites have XY sex chromosomes, this by no means rules out the possibility that the abnormality may have a genetical basis, since the ability to detect alterations at the gene level lies far beyond our relatively crude method of studying intermitotic nuclei

Is Completely Horizontal Position Necessary After Lumbar Puncture? A Berjaal and T B Kraft Nederl Tijdschr geneesk 98 1493-1494 (May 29) 1954 (In Dutch) [Amsterdam, Netherlands]

Most hospitals enforce a strictly horizontal dorsal posture for at least 24 hours after spinal (lumbar) puncture This is done in the belief that it will avoid complaints Many patients, however, do not like this prolonged horizontal position, and the rule stresses the widely accepted belief that lumbar puncture is a serious intervention In order to be able to judge the advisability of this measure, Verjaal and Kraft kept alternate patients of a consecutive group of 200 patients who were undergoing lumbar puncture lying flat on their back for 24 hours after puncture The other patients were permitted to move freely in their beds and use a pillow The two groups of 100 each were otherwise comparable The number of patients with complaints after puncture was the same in each group As a result of this investigation, the authors were not convinced of the efficacy of making patients lie down flat for 24 hours after puncture

The Place and Scope of Procaine Injection in the Prefrontal Brain R Soupault Presse med 62 828-829 (May 29) 1954 (In French) [Paris, France]

Prefrontal block by procaine injection has proved as effective as lobotomy in relieving intractable pain in incurable cancer patients, and, in contrast to lobotomy, the procedure does not have serious harmful consequences, particularly mental deterioration Since the infiltration with procaine can be strictly localized, it is far superior to "blind" section Some recent fashionable theories (American psychosomatic doctrine, Soviet "nervism" based on Pavlov's work, the corticovisceral theory, etc) suggest that the evolution of a large number of morbid processes is dominated by the internal organs and the cerebral cortex functioning as a unit, the "visceral brain " The paths of these actions are fairly well known and can be accurately reached by procaine infiltration Thus it is possible for the procaine block to intervene in some of these visceral pathological processes, particularly in those in which vasomotility plays a part. The interest of these new concepts is enhanced by the results of preliminary trials of the method in a few well-selected cases The authors list some of their results recently reported elsewhere immediate arrest of intestinal hemorrhages caused by sigmoiditis, amelioration of local signs of chronic progressive arthritis, and sedation of pain (follow-up one and a half years), suppression for eight months of intestinal hemorrhages in a case of severe progressive hemorrhagic rectocolitis, immediate clinical and verified radiological cure of a giant ulcer of the small gastric curvature accompanied by violent pain and severe hemorrhage (follow-up 10 months), and immediate arrest of severe hemorrhages in a patient with a duodenal ulcer

Carbon Dioxide Content of Alveolar Air in Poliomyelitis with Respiratory Paralysis G Miorner Nord med 51 675 679 (May 13) 1954 (In Swedish) [Stockholm, Sweden]

The aim in the treatment of poliomyelitis with respiratory paralysis is to provide ventilation of such amount and composition that the oxygen and carbon dioxide tension in the arterial blood is kept within normal limits As the usual clinical observation gives only incomplete information as to the state of ventilation, for rational care of respirator patients an objective registration of the blood gases is required Because of the rapid diffusion of carbon dioxide through the alveolar membrane, the carbon dioxide tension is virtually the same in the alveolar air and the capillary blood in the lungs In the Epidemic Hospital in Malmo the ventilation in respiratory paralysis was checked by determination of the carbon dioxide content of the alveolar air by means of an analyzer (the Liston-Becker gas analyzer) that allows registration of the carbon dioxide content through out the respiratory cycle If in spite of normal elimination of carbon dioxide signs of oxygen deficiency appear, as in atelectasis, part of the air is replaced by oxygen, without change in the total amount of gas insufflated If the patient s condition is aggravated, analysis of the alveolar air shows whether the deterioration depends on insufficient ventilation with carbon dioxide accumulation or on other factors When the patient begins to breathe without a respirator, determination of the carbon dioxide content measures the effectivity of spontaneous respiration and indicates whether the patient can get along without a respirator Enough trained personnel and access to efficient respirators for pressure respiration are needed for the treatment of respiratory paralysis Seven poliomyelitis patients with respiratory paralysis treated in the fall of 1953 were followed by carbon dioxide analyses. Of the six treated with pressure respiration after tracheotomy two died, the others had decannulation and had good respiratory function.

Dehydration and Acute Delirium J Delay, P Deniker and J Fourment. Presse méd 62 827-828 (May 29) 1954 (In French) [Paris, France]

Acute psychoses are often accompanied by isolated cellular dehydration, in which case there is acute delirium, or by a state of generalized dehydration that gives rise to a syndrome called acute psychotic hyperazotemic encephalitis." Certain symptoms —confusion, fever, sitophobia, and hyperazotemia—can be induced or aggravated by dehydration The primary phenomenon appears to be a disorder in water metabolism The authors urge that massive rehydration be added to the habitual treatment of acute psychosis

GYNECOLOGY & OBSTETRICS

Incidence and Question of Hormonal Etiology of Cancer of the Breast Statistical Study H-J Maurer Arztl Wchnschr 9 462-465 (May 14) 1954 (In German) [Berlin, Germany]

Maurer points out that opinions about the causative role of estrogens in cancer of the breast have been contradictory Whereas some, largely on the basis of animal experiments carried out by Murray, Lacassagne, Nelson, Lipschütz and others, assumed that estrogens had carcinogenic effects on the breast, studies by Kaufmann and associates as well as by Butenandt indicated that estrogens exert only a 'conditional" carcinogenic effect, that is, they alone are not sufficient but other factors such as heredity and the milk factor must be added Maurer, on the basis of statistical evaluations, came to the conclusion that too much reliance has been placed on animal experiment and too little attention has been given to the statistical evaluation of clinical material He feels that the female organism has an adequate counter regulation for excessive estrogen formation during menstruation and pregnancy Statistical studies convinced him that the incidence of breast cancer increases progressively to the ninth decade, it is more frequent at the higher ages If it takes about 10 years for a cancer of the breast to develop, anaplasia begins in the majority of breast carcinomas after the menopause Upward movement of the peak of incidence toward higher age groups has been demonstrated in recent times not only on the basis of clinical material but also of the mortality within large population groups The rate of breast cancer in women without children or with only one or two children is noticeably above that in women who have more than two children The concurrence of cancer of the breast with pregnancy or lactation is extremely rare (0 68%) The supposed greater seriousness of the prognosis of breast cancer in pregnant women could not be statistically verified Pregnancies that begin more than three years after completion of treatment for a breast cancer exert no influence on the further course of the breast cancer

Some Observations in the Field of Exfoliative Cytology E von Haam Am J Clin Path 24 652 662 (June) 1954 [Baltimore]

The observations reported by von Haam were made on over 12 000 vaginal smears examined between 1946 and 1953 The increasing accuracy of diagnosis is demonstrated in a table which compares the percentages of errors as well as of correct diagnoses for four successive two year periods Correct diagnoses increased from 77% in the years 1946 to 1947 to 89 4% in 1952 to 1953, false negative results decreased from 9 5 to 2 7% With regard to the recognition of cytological patterns in which malignant cells are frequently found the author says that malignant cells usually appear in smears that carry certain characteristics recognizable under low magnification The most important ones are acidophilic basal cells and basophilic squamous cells with large nuclei On the basis of animal experiments and some clinical evidence, the author believes that atypical nonmalignant cells can be distinguished from atypical malignant cells Nuclear hyperchromatism and the presence of a macronucleolus are the most reliable signs for malignancy Comparison between the cytological response and the clinical results in patients with carcinoma of the cervix treated by various types of irradiation showed that a fair correlation existed only in the group treated by interstitial irradiation. The follow-up of three patients with untreated carcinoma in situ of the cervix over a period of two to six years revealed a periodic reappearance of atypical and malignant looking cells in the vaginal smears This observation suggests that this lesion can either be reversible or remain in an arrested stage for some time

Psychoprophylaxis of Pain in Childbirth J Ravina, P Devraigne, S Tsouladzé and J Coenca Semaine hop Paris 30 2202-2210 (May 30) 1954 (In French) [Paris, France]

Psychoprophylaxis of pain in childbirth rests on the systematic utilization and management of the processes of cortical inhibition and excitation The desired cortical inhibition and excitation are established and reinforced by preparatory instruction consisting of six weekly lessons beginning in the seventh month of pregnancy and a series of exercises to be practiced by the patient at home. The success of the preparation depends largely on the confidence established between the patient and the physician at the first lesson The Soviet obstetricians who have been active in this field insist on the genuine physiological importance of the material surroundings in which the instruction is given they believe that the conditions should contribute to "maximal limitation of external excitants" and should act on the cortex of the pupils, and for this purpose they advocate 'special rooms comfortable furniture, observance of discipline cessation of conversation restriction of movements, and an atmosphere of calm' The fact that women who have received psychoprophylactic preparation of this kind for childbirth are free from anxiety and fear and are relaxed, docile, and happy in itself justifies the use of this method, but it must be remembered that it can be fully effective only if obstetric hindrances to parturition are adequately dealt with and if the patient has the assurance that analgesia and appropriate obstetric treatment will be applied promptly in case they become necessary The nervous constitution of the parturient also has much to do with the effectiveness of psychoprophylaxis, because, though all human beings are susceptible to the suggestive power of words, not all can respond to it with the same energy or the same result The best results are obtained among women of a strong type, and these are the very ones in whom childbirth, even without preparation, is often painless The authors were hampered in their use of this method by certain material disadvantages nevertheless they obtained positive results in 22 out of a total of 30 women Suppression of pain was complete in 10 of the 22, and substantial in the other 12

PEDIATRICS

Corticotropin in Lipoid Nephrosis. C. Hooft and R Clara Nederl tijdschr geneesk. 98 1213-1227 (May 1) 1954 (In Dutch) [Amsterdam, Netherlands]

Five children with lipoid nephrosis were treated with corticotropin The classical dosage of 50 to 100 mg per day for from five to eight days was employed in four of these Diuresis increased considerably in all of the children and three patients clinically showed improvement over a considerable period Two children were treated with small doses (10 mg per day) for from one to two months. These small doses, although producing no increase in diuresis, improved the general condition Under the influence of the classical dosage proteinuria decreased greatly in one patient and slightly in three others The cholesterol content of the serum decreased considerably in four children receiving the short course of corticotropin therapy Temporary improvement in the serum protein spectrum was observed in one of the patients, and in another patient deterioration of the serum proteins took place during treatment with cortisone The other children showed no change in the serum proteins during corticotropin therapy Thus corticotropin therapy does not normalize total protein and the protein fractions to the same extent as is observed during intercurrent infectious diseases, particularly measles However, in young patients, with good renal function the stimulation of the protein metabolism may lead to recovery In patients with lipoid nephrosis who do not as yet have signs of increasing renal insufficiency, corticotropin may prove a valuable aid for several reasons The permeability of the glomeruli for water increases greatly the improvement in the general condition improves the appetite Corticotropin may be lifesaving in patients with severe edema Of the 27 patients with lipoid nephrosis treated by the authors since 1949 7 died and 16 recovered, the other four still show signs of active lipoid nephrosis Renal insufficiency was the cause of death in only three of the seven who died The other four died of hydrothorax, pericardial effusion, cachexia, or generalized edema The authors feel that these last four might have been kept alive with corticotropin

Case Report of Boric Acid Poisoning from Topical Application W T Maxson J Kentucky M A 52 423-424 (June) 1954 [Bowling Green, Ky]

A 17-day-old infant was brought to the hospital because of a rash and vomiting As the baby was deep crimson from feet to scalp, the mother was asked if she had used any boric acid on the baby She gave the following history four days before admission the baby began to have loose stools, and his buttocks became chafed For two days she powdered his perineal region with boric acid powder, and on the third day she substituted boric acid solution for the powder On the day of admission she noticed that the skin over his entire body was quite red, and a large blister appeared on his neck He had fever and vomited several times There was considerable excoriation in the perineal region with a raw, weeping surface The baby was moderately dehydrated and was given fluids, parenterally, and penicillin as a prophylaxis for secondary infection He continued to vomit and retained nothing given orally In the course of some 12 hours the brilliant crimson of his skin began to fade, and many large bullae formed The slightest pressure on the skin caused the epidermis to slough off His course was steadily downward, and, when he died on the third hospital day, about half of his epidermis had sloughed off At necropsy boric acid was demonstrated in the liver tissue Boric acid poisoning can occur from ingestion, from irrigation of body cavities, and from intravenous infusions There have been numerous reports of fatal poisoning from application of boric acid powder, ointment, or solution to the skin Although the drug is not absorbed from the intact skin, it is readily absorbed from any area of broken or eroded skin The commonest symptoms of poisoning in infants are vomiting, diarrhea, convulsions, coma, and an erythematous rash This erythema may be so intense as to make the infant have the appearance of a "boiled lobster" It is suggested that a warning label be put on all preparations that contain boric acid, such as dusting powder and ointments

High Oxygen and Hyaline-Like Membranes P D Bruns and L V Shields Am J Obst & Gynec 67 1224-1236 (June) 1954 [St Louis]

Hyaline membranes were produced in 75% of guinea pigs by exposure to 98% oxygen at sea level pressure from 40 to 100 hours Experimental animals with oxygen-produced hyaline membranes that survived showed no evidence of residual lung damage five weeks after exposure Specific and nonspecific staining reactions were similar in naturally occurring and experimentally produced hyaline membranes, this suggests a similar composition for all pulmonary hyaline membranes without implying the same etiology of all types From histological comparison, pulmonary hyaline membranes in experimental animals and those in the newborn seem to be the result of injury to the alveolar duct and terminal bronchiolar structures Atelectasis and intracranial hemorrhage are frequently associated with hyaline membrane disease in infants but were not found in animals killed by exposure to high oxygen concentrations Aerosols of Alevaire (a nontoxic proprietary detergent) and alcohol behaved in a relatively nontoxic fashion and were accompanied by little hyaline membrane formation in experimental animals Animals given large doses of steroid hormones died rapidly in high oxygen with a fulminating type of pulmonary vascular injury, the possible significance of this finding is discussed Although high concentrations of oxygen (over 70% at sea level pressure) given continuously and for prolonged periods to animals or human beings are injurious to pulmonary epithelium, certainly they are not the sole cause of hyaline membrane disease in the premature infant However, high oxygen (over 70%) can be an aggravating factor that may enhance pulmonary damage to the premature infant

DERMATOLOGY

The Care of the Common Mole D Chapman and C T Klopp M Ann District of Columbia 23 308-312 (June) 1954 [Washington, D C]

Chapman and Klopp reviewed case records and found that neither the average physician nor the specialist always recognizes the beginning of a melanoma The average physician may not be able to distinguish between a malignant melanoma and a benign nevus by physical examination A specialist may not recognize a melanoma even if it is large The authors consider as a mole, a pigmented skin lesion that is not obviously a freckle, a hemangioma, an angioma, a patch of vitiligo, or a seborrheic keratosis and therefore cannot be accurately diagnosed by clinical examination alone They regard the following as indications for surgical excision 1 Any mole that bleeds or discharges should be excised 2 Any mole that is sufficiently frequently irritated to come to the attention of the patient should be excised 3 Any mole that the patient feels has been enlarging should be excised, including moles that appear de novo in an adult Most moles change size so slowly that such change is not apparent to the person or his close associates but may be noted only by someone who has not seen him for a long time On the other hand, many melanomas have been removed because the patient noted a change in size before excision There are specific exceptions to this During pregnancy many or perhaps most moles enlarge somewhat and become more deeply pigmented Hence, if a patient is pregnant, excision surgery must include only those moles that the physician thinks are enlarging more than is anticipated as a result of the pregnancy 4 Any mole that the patient thinks is becoming more deeply pigmented should be excised 5 A black or blue mole should be excised Since most nevi are brown, excision of all black or blue lesions is not a formidable task 6 A mole on the palms of the hands, soles of the feet, genitalia, the oral mucous membrane, or under the nails should be excised, because benign lesions in these areas are relatively infrequent The authors emphasize that pigmented skin lesions should be surgically excised and not destroyed, since only thus can an accurate diagnosis be made They feel that skin incisions should be placed about 0 5 cm from the borders of the lesion, and those proved to be malignant can then be reexcised very widely with or without a concomitant regional lymph node dissection

Contribution to Etiology of Acne Vulgaris J Meyer-Rohn Arch Dermat u Syph 197 542-556 (No 6) 1954 (In German) [Berlin, Germany]

The contents of pustules from 120 patients with acne vulgaris were examined microscopically and on culture Cultures were made from squeeze-preparations of persons with normal skin and with cutaneous diseases Comedones were examined microscopically and on culture Extracts were prepared from positive cultures of Corynebacteria, and intracutaneous injections of these extracts were given to a large number of probands An antigen was prepared and an attempt was made to elucidate the serologic conditions The types of the bacteria were determined, and the conditions of their sensitivity to various antibiotics were analyzed Gram-positive rods that could be defi nitely identified as Corynebacterium acnes were found almost regularly in acne efflorescences and comedones Despite these findings, the author first assumed that acne vulgaris is primary and that colonies of C acnes occur only secondarily in pustules and comedones This concept was based on the following facts 1 Determinations of resistance showed satisfactory to very satisfactory sensitivity of C acnes to penicillin, streptomycin chlortetracycline (Aureomycin), chloramphenicol (Chloromycetin), pikromycin, oxytetracycline (Terramycin) In contrast to that, antibiotic therapy failed except for protracted administration of oxytetracycline This might be explained by the fact that the antibiotics cannot reach the acne foci since the Corynebacteria have settled down within the sebaceous gland 2 C acnes grows preferably in fatty acids, optimal mediums of this type are present in the acne pustules, comedones, and even in atheromas 3 The almost regularly positive finding of C acnes in comedones is somewhat in disfavor of a causative part played by these micro-organisms, not nearly every carrier of comedones turns into a patient with acne In contrast to these findings, the serologic results were notable in that the serums of patients with acne showed a strongly positive complement fixation reaction to the extracts prepared from pure cultures of C acnes while the serums of persons with normal skin showed a negative reaction to the same extracts Further serologic examinations and animal experiments are required to elucidate the questionable causative nature of C acnes in acne

Occurrence and Control of Ringworm of the Scalp in the United States W A Casper and J Malone New York J Med 54 1645-1651 (June 1) 1954 [New York]

According to Casper and Malone, ringworm of the scalp due to Microsporum audouini is not so prevalent now as it was during the epidemic of the middle and late 1940 s A survey of its incidence is presented with data concerning present methods of control throughout the United States, Recommendations are made for more uniform and practical methods of control The authors point out that excluding children from school has a harmful effect on them and their education It also throws unnecessary financial and administrative burdens on the school authorities without achieving control Children who are excluded from school may not continue to receive adequate treatment but will still play with other children both within and without their own family groups If infected children are permitted to attend school, treatment can be supervised and maintained Also the education of the children and of their parents in the cause and treatment of the disease can be instituted The suggestions for control measures include necessity of reporting all cases, inspection by means of Wood s light of exposed children, obligatory treatment of infected children, consideration of the carrier problem There is no specific treatment for ringworm of the scalp due to M audouini The authors review their own experience in the treatment of a severe outbreak of ringworm among the children at the pediatric division of Seaview Hospital, Staten Island The total number of patients was 40, all boys The causative organism was M audouini Throughout the duration of treatment all children were kept in a special tinea capitis ward The hair was clipped weekly, and heads were washed daily White linen caps were worn continuously day and night The drugs used were Decupryl liquid, Furaspor cream, and Asterol tincture Decupryl liquid is a solution of copper undecylenate, undecylenic acid with a wetting agent, aerosol, in a solvent liquid base containing isopropyl alcohol and tetrachloroethylene Furaspor is a cream base containing 1% of nitrofurfuryl methyl ether Asterol Tincture is a 5% solution of the hydrochloride of 2-dimethylamino-6-(beta-diethylamino ethoxy) benzothiazole in 70% isopropyl alcohol Treatment was started with Decupryl in 19 and with Furaspor in 18 children Wood s light readings were taken weekly in the morning after scalp cleansing prior to the morning application of the drug Asterol was used in 12 patients including some of those not showing response to Furaspor The liquid preparations seem to be more effective than the one with cream base, Decupryl more than Asterol There were no side-effects from Asterol

Analgesic Effects of Cortisone and Hydrocortisone F B Benjamin and T Cornbleet A M A Arch Dermat & Syph 69-688-693 (June) 1954 [Chicago]

In a previous investigation on the local effect of intracutaneously injected cortisone Benjamin and Cornbleet found that cortisone exhibited some local anesthetic action Goldman Emura, and Baskett believe that the anti-inflammatory effects of cortisone may be due to hydrocortisone as a peripheral cortisone metabolite In the studies reviewed here the local effects of cortisone and hydrocortisone were compared with those of their suspension medium, of antihistaminics and of procaine (Novocain) hydrochloride as to their (1) immediate analgesic properties, (2) later analgesic properties, and (3) the immediate inhibition of skin flare The immediate analgesic effect of the hormones was more pronounced than that of any other substance tested, and no significant differences in effect were found between the two hormones Tested for their later analgesic properties, cortisone and hydrocortisone showed some analgesic properties, but they proved inferior to procaine hydrochloride and concentrated chlorprophenpyridamine (Chlor-Trimeton) In the immediate inhibition of skin flare the antihistaminics show as much effect as the two hormones, while procaine hydrochloride has no immediate effect These findings indicate that the mechanism of the analgesic action of the adrenocortical hormones studied is different from that of the antihistaminics and of the local anesthetics The fact that the hormones exert their analgesic action quickly at a time when procaine hydrochloride has had as yet no time to act indicates that the hormones act at an early stage The inhibition of immediate pain appears to be different in nature from the inhibition of later pain and the inhibition of skin flare

UROLOGY

Essential Renal Hematuria H E MacMahon and R Latorraca J Urol 71 667-676 (June) 1954 [Baltimore]

Unilateral nephrectomy was performed on two men aged 56 and 24 years respectively, and on a 56-year-old woman with so-called essential hematuria, i e., severe, recurrent unilateral bleeding from the kidney in the absence of either an obvious source or a mechanism of hemorrhage In all three patients, microscopic examination of the removed kidney revealed a single lesion manifesting itself as a direct channel of communication between the pericalyceal venous plexus and the lumen of the calyx Emphasis is placed on the important role of the venous plexus in severe bleeding from the kidney not only in cases of "essential hematuria but also in the presence of other lesions observed within the kidney A review of the literature suggested that a more careful search in the area comprising the minor calyces, in the region of the fornices and adjacent areolar tissues may reveal the source of bleeding far more often than it is generally found Particular emphasis also is placed on the so-called angiomatous and telangiectatic vascular lesions of the kidney Concerning the problem of therapy the authors advocate assuming a more realistic attitude by considering the most probable type of lesion that may be found and giving more attention to the repair or removal of this lesion in an effort to save the entire organ

The Cryptorchid Problem J S Grove J Urol 71 735 741 (June) 1954 [Baltimore]

Among the 168 058 patients admitted to the Michael Reese Hospital of Chicago between 1943 and 1951 there were 101 (0 06%) with cryptorchism The percentage of patients with ectopia of the testis would be much greater than 0 06% if the statistics were only on male patients and also did not include readmissions Likewise the number of patients with cryptorchism would be much more than 101 if all patients with this condition had been included and not only those who entered the hospital for surgical treatment of ectopia A study of malignant testicular tumors made at Michael Reese Hospital between 1921 and 1951 revealed 55 cases of tumors in scrotal testes, and 2 cases in ectopic testes (a ratio of 3 6%) One of these ectopic cases occurred in an abdominal testis, and the other in an inguinal testis that recently had been brought down successfully into the scrotum This incidence is certainly under the figure of 10 to 15% of malignancy in undescended testes that was given in many reports The author believes that the fear of malignancy in a cryptorchid testis is not a reason for surgical intervention, i e, orchiectomy Microscopic changes occurring in ectopic testes after the age of six years demonstrate a sharp decrease in germinal elements in contrast to normally placed testes Because of this early atrophy, surgery should be performed before the age of six years The use of hormone therapy in the cryptorchid patient is questionable because if one testis is in the scrotum it signifies that enough hormonal stimulation for descent is present The reason for nondescent in the other then must be due to adhesions or a narrow inguinal canal or some constitutional defect of the testis In older persons surgery may be performed for an associated symptomatic hernia or for cosmetic reasons The possibility of future malignancy should not be a reason for surgical intervention Undescended testes that cannot be brought down satisfactorily at the time of surgery should not be subjected to multiple operations They should be let alone if they are in the groin and, if they are in the abdomen, they should be removed The rationale for orchiopexy must rest on the placement of the testis where it can be observed closely Contacts with these patients should be kept for many years This will give some suggestions as to the changes that occur in these organs, particularly with regard to the questions of atrophy and malignancy In view of the long interval, up to 20 years, before malignant changes took place in testes successfully placed in the scrotum (two such cases are reported in detail), the author does not believe that the ectopia should be blamed for this tumor formation These tumors should be simply classified as tumors of a scrotal testis

Cancer of Prostate J Picatoste y Picatoste Cir ginec y Urol 7 47-58 (Jan) 1954 (In Spanish) [Madrid, Spain]

Cancer of the prostate is highly metastasizing Bone metastases are most frequent in the pelvic girdle and in the lumbar vertebrae These metastases are very painful Pain, either unilateral or bilateral, is located mainly in the lumboiliac and sacrococcygeal regions and may radiate to the gluteal region, the thigh, and the leg Pain becomes unbearable as the metastases grow The patients become invalids from fear of eliciting pain through postural changes or by walking The urinary symptoms appear late A presumptive diagnosis is suggested in the presence of bilateral sciatic pain The roentgenograms of the bones confirm the diagnosis The changes in the bones with cancer metastases of the prostate consist of rarefaction and condensation either in alternation or in juxtaposition, giving the bones an aspect similar to that observed in Paget's disease The changes in the bones and in the vertebrae vary with the stage of metastasis, from the simple aspect to deformation of the bones and appearance of ivory vertebrae, to complete skeletization of the bones and vertebrae In rare cases a great number of vertebrae or all of them, as well as the pelvis and the head of the femur, are involved by metastases The contours of the vertebrae and of the sacrum are almost invisible in the roentgenograms The treatment consists in administration of estrogen compounds, which gave satisfactory results in 75% of the patients observed by the author The general condition and appetite of the patients improved, metastatic pain greatly diminished or disappeared, and the metastases regressed Regression of metastases was proved by roentgen examination or by palpation of palpable metastases in structures other than the bones The good results observed by the author lasted between two and one-half and four and one-half years One of the patients had two long periods of improvement one for three years after administration of estrogen compounds for one year and the second of more than one year The patient is still in a state of improvement after administration of estrogen compounds for seven months Cancer of the prostate rarely gives metastases to structures other than bones The author reports five cases, one each of metastatic inguinal adenopathy, metastases in the face over the region of the ascending branch of the lower maxilla, the palm of the hand, the bronchi, the lung, and the liver The results of treatment with estrogen compounds in this series of patients were comparable to those obtained in patients with bone metastases, except in two patients who were observed for the first time in an advanced period of cancer of prostate, one with acute retention of the urine and one in a condition of advanced cachexia

Carcinoma of the Prostate K E Van Buskirk and J C Kimbrough J Urol 71 742-747 (June) 1954 [Baltimore]

Of 841 men with disease of the prostate admitted to Walter Reed Army Hospital between 1940 and 1952, 705 were treated for benign prostatic hypertrophy and 136 with an average age of 65 8 years for carcinoma of the prostate Radical perineal prostatectomy, i e, removal of the prostate and capsule and seminal vesicles, was done in 74 (54 5%) of the 136 patients This high percentage of radical procedures was attained because of the requirements of the annual physical examination of military personnel, which includes a digital rectal examination The tissue removed by excision was microscopically studied and if the results of the study indicated that the entire malignant area had been removed, no further treatment was given Orchiectomy and estrogen therapy was instituted without delay in patients in whom the tissues beyond the capsule were involved Postoperative follow-up, x-rays, and acid phosphatase determinations were done at three month intervals during the first year, at six month intervals the second year, and annually thereafter In 62 (45 5%) of the 136 patients, palliative treatment consisting of estrogen therapy, orchiectomy, transurethral resection, suprapubic cystostomy, roentgen irradiation, prefrontal lobotomy, and adrenalectomy, was the only treatment possible because of metastases or evidence of local extension beyond the limits of surgical excision Of 30 patients who received palliative treatment, 8 (26%) survived for more than five years, 20 (67%) died, and 2 were lost to observation Of 22 patients subjected to radical perineal prostatectomy, 11 (50%) survived for more than five years, 7 died (31%) and 4 were lost to observation The increased survival rate of patients subjected to radical perineal prostatectomy over those subjected to conservative procedure is evident Most of the 20 deaths in the group with palliative treatment resulted from carcinoma of the prostate Of the seven deaths in the group with radical treatment, 4 resulted from carcinoma of the prostate, 2, 23, 26, and 30 months, respectively, after the operation The remaining three patients died of other causes All men over 40 years of age should have an annual digital rectal examination to detect early evidence of cancer of the prostate Suspicious glands should be examined more frequently for evidence of change

OTOLARYNGOLOGY

New Treatment of Chronic Secretory Otitis Media. B W Armstrong A M A Arch Otolaryng 59 653-654 (June) 1954 [Chicago]

Armstrong presents a new treatment for chronic secretory otitis media A small piece of plastic tubing, measuring about 1 5 mm in diameter, is inserted into the middle ear through a conventional myringotomy incision This provides continuous ventilation of the middle ear and allows the lining membrane to return to normal It also permits drainage of fluid into the external auditory canal and prevents the incision from closing prematurely The tube may be left in place as long as desired—two to three weeks has been long enough in most cases The tubing is inert, and no evidence of irritation or unfavorable reaction has been observed Five patients have been successfully treated by this method A typical case is reviewed to illustrate the treatment

Rationale for Velar Closure as Primary Procedure in Repair of Cleft Palate Defects W B Slaughter and S Pruzansky Plast & Reconstruct Surg 13 341-357 (May) 1954 [Baltimore]

Slaughter and Pruzansky feel that closure of the congenital cleft of the palate is not solved by treating the structures as static masses The tissues involved in the cleft proper, as well as the structures contiguous to the defect, must be considered in terms of time, and of growth, which implies more than an increase in size The various structures increase in size at different rates, and in this way growth brings about alterations in proportion as well Surgery can either aid in directing the natural growth processes into proper channels through establishment of muscle balance across the defect, or it can interfere with the normal developmental changes by hindering growth through interference with blood supply, introduction of scar or destruction of growth centers The authors present the rationale for closure of defects of the velum as a primary procedure, and its relationship to the closure of the entire cleft of the palate The surgical principles utilized to effect a closure of the palate are exemplified in four case reports chosen from 200 such cases When the criteria for closure have been fulfilled early in life, surgery may be attempted even before one year of age In other instances, it has been found necessary to postpone surgical intervention until growth and development provided more desirable circumstances The variety of cases presented served to emphasize the authors' inability to prescribe a rigid formula for timing the surgical repair Some surgeons achieve a percentage of success while following a fixed rule in terms of technique and timing Yet others, following diametrically opposite schools of thought, have achieved a measure of success in their own way To establish a middle ground that would allow for flexibility in choice of technique and less rigidity for timing of surgery, requires an understanding of the myodynamics of the defect and of the growth potential of the structures involved This presentation is an attempt to justify the approach of these authors to the problems attending surgical repair of cleft palate The results are documented by longitudinal growth studies utilizing cephalometric roentgenography and casts of the palate

THERAPEUTICS

Vascular Effect of Isoniazid Clinical Observations L. Stura and M Mannari. Minerva ginec 6 207-212 (March 31) 1954 (In Italian) [Turin, Italy]

Stura and Mannari studied 10 patients with tuberculosis of the genital organs in whom hemorrhagic signs of the petechial type appeared during isoniazid therapy They performed various tests before the drug was administered and each time after a total dose of 1,000 mg was given (The daily dosage was 200 mg) With the exception of some mild cases of anemia, which was probably caused by the disease itself rather than the drug, the number, volume, and resistance of the red blood cells and the number of platelets remained unchanged The prothrombin time was only slightly prolonged The capillary fragility test revealed alterations in the small vessels The main change was an increase in the permeability of the capillaries These alterations were seen after a total dose of from 2,000 to 4,000 mg was given The decreased capillary resistance may be the result of a direct or indirect action of the drug The former would take place through an inhibition of the cellular oxidation processes and would be favored by the existing tuberculous toxemia The indirect action may be explained in various ways Products of the bacterial disintegration caused by the drug may enter the circulation Substances that are the product of the altered hepatic metabolism induced by isoniazid and that have a toxic action on the capillaries may enter the circulation There may be an isoniazid stimulation of neuroendocrine nature that would be followed by a neurovegetative dystonia that determines vasomotor hyperemia-causing discharges in certain areas The authors suggest that vitamins C and P be given to patients receiving isoniazid to protect the capillaries Because the liver may be an important factor in the causation of the decreased capillary resistance that follows isoniazid therapy, this should be supplemented also by a liver protecting therapy

Symptomatology and Pathogenesis of Intoxication Produced by Oxytetracycline (Terramycin) E Koch, F Heiss, H J Wachtel and K Schompert. Medizinische No 21 742-744 (May 22) 1954 (In German) [Stuttgart, Germany]

Single injections of a commercial preparation of oxytetracycline (Terramycin) were given to 160 guinea pigs and 90 rats Toxic symptoms consisted of pronounced muscle spasms, pulmonary hemorrhages, enterocolitis, and a polyuria with severe mineral loss In general, guinea pigs were more sensitive to the toxic effects of the antibiotic than rats Intracerebral administration of 4 to 8 mg of oxytetracycline per kilogram of body weight caused severe spasms of equal intensity in both guinea pigs and rats In guinea pigs the lethal dose was 10 to 12 mg per kg of body weight regardless of route of administration This suggested that the toxic effect of oxytetracycline need not be primarily cerebral, and this was confirmed by the observation that the brain from which the blood had been removed was free of oxytetracycline despite a high oxytetracycline level in the blood and despite administration of the antibiotic into the artery leading to the brain The presence of an oxytetracycline destroying power in the cerebral tissue could not be demonstrated in the guinea pigs nor in the rats The authors studies showed that the muscle spasms were not produced by the oxytetracycline molecule but by the sodium glycinate, which in the commercial preparation had been added to the antibiotic to maintain its solubility In addition to the pulmonary hemorrhages, a general tendency to hemorrhages was observed in the capillary areas of various organs, the intestines, sex organs, kidneys, brain, and skin A rapid drop, up to 10%, of the prothrombin level, that could not be replaced by high doses of vitamin K_1 was found, it was caused by an acute insufficiency of the liver particularly with regard to the formation of prothrombin complex Corresponding microscopic findings consisted of dissolution of the liver cells, vacuolization and cell necrosis The polyuria occured after a latent interval of four to six days following a single injection of oxytetracycline Considerable loss of weight and dehydration resulting in a protoplasmic collapse with drop of temperature, increased hemoconcentration and hypoglycemic spasms were the sequelae of the liver insufficiency and the increased cell necrosis Of eight patients with cholangitis and cholangitic cirrhosis, respectively, who were given 250 mg of oxytetracycline intravenously daily, three showed a drop of the prothrombin level, three a rise of the serum urea level, and one a considerable diuresis as signs of oxytetracycline intoxication After discontinuation of the antibiotic, these disturbances subsided completely within one to three days Oxytetracycline, like chlortetracycline (Aureomycin), should not be given to patients with liver damage

A Comparison of Cortisone and Aspirin in the Treatment of Early Cases of Rheumatoid Arthritis A Report by the Joint Committee of the Medical Research Council and Nuffield Foundation on Clinical Trials of Cortisone, A C T.H , and Other Therapeutic Measures in Chronic Rheumatic Diseases Brit. M J 1 1223-1227 (May 29) 1954 [London, England]

Sixty-one patients in the early stages of rheumatoid arthritis, and regarded as suitable for treatment with either cortisone or aspirin, were allocated at random to treatment with one or the other agent (cortisone, 30 patients, aspirin, 31 patients) These two comparable groups were treated and observed for one year before this first report was made For most of the year, treatment was individualized by the physician in charge of the patient at a level sufficient to restore maximal functional efficiency without producing serious side-effects Observations made 1 week, 8 weeks, 13 weeks, and about one year after the start of treatment reveal that the two groups ran a closely parallel course in nearly all the recorded characteristics—joint tenderness, range of movement in the wrist, strength of grip, tests of dexterity of hand and foot, and clinical judgments of the activity of the disease and of the patient s functional capacity The hemoglobin level and blood sedimentation rate were slightly more favorably influenced by cortisone, but in no other respects did the groups significantly differ With each form of treatment the disease was judged at the end of one year to be inactive, or only slightly active, in about three fourths of the patients, and with each treatment some two-fifths of the patients were regarded as capable of normal work and activity For practical purposes, therefore, there appears to be surprisingly little difference between the two drugs in the management of early cases of rheumatoid arthritis As this trial continues over a period of two more years, it is hoped that the evolution of the rheumatoid process itself under the influence of prolonged therapy with these different agents can be studied

Severe Asthma Treated with Corticotropin K Ball Lancet 1 1162-1165 (June 5) 1954 [London, England]

Thirteen patients with severe chronic asthma were given either corticotropin or isotonic sodium chloride solution by injection for 12 days No one in charge of the patients knew which substance was being given Of the six patients receiving corticotropin five showed moderate or much improvement, compared with 2 out of 7 patients receiving isotonic sodium chloride solution Much improvement took place in 3 of 7 patients with status asthmaticus treated with corticotropin Twelve patients with severe asthma were maintained on corticotropin therapy with satisfactory results Usually their asthma became mild Death is likely in patients who have repeated attacks of status asthmaticus Corticotropin (or alternatively cortisone) should be made available in all such cases

Risk of Thromboembolic Complications from Cortisone Therapy H I Russek B L Zohman and A S Russek Am Heart J 47 653-657 (May) 1954 [St Louis]

A course of cortisone in relatively large doses was given to 76 men and 10 women with serious vascular disease, most of whom were between the ages of 40 and 74, 6 patients had angina pectoris and were given cortisone to determine its influence on coronary reserve The remaining 80 patients received cortisone for various conditions such as atypical pneumonia unresponsive to antibiotics, refractory shoulder-hand syndrome, acute cerebro vascular accidents and chronic hemiplegia after apoplectic stroke Most patients were given 200 mg of cortisone orally in divided doses on each of the first two days with progressive diminution to a maintenance dose of 50 mg daily through the third week Eighteen patients received initial doses of 300 mg daily Three patients were given maintenance treatment for 4 to 14 weeks All patients were placed on a low salt diet No thromboembolic complications were observed in these patients during the course of cortisone treatment and for several weeks after its termination There was no aggravation of symptoms attributable to cortisone in patients with angina pectoris and the levels of blood pressure in those with hypertensive disease were also uninfluenced by the drug These results seem to indicate that the theoretical danger of thrombotic complications from the use of cortisone is not clinically significant and that underlying disease of the heart or blood vessels need not preclude such therapy when proper supervision and simple precautions such as encouragement of active and passive motion and frequent change of position in bed are instituted Administration of cortisone does not constitute a sufficient threat clinically even in patients with serious vascular disease to require anticoagulants prophylactically

PATHOLOGY

Absence of the Left Pulmonary Artery A Report of Six Cases with Autopsy Findings in Three J S McKim and F W Wiglesworth Am Heart J 47 845-859 (June) 1954 [St Louis]

Necropsies were performed in 210 patients with congenital anomalies of the heart who were operated on and died within a short time after the operation They revealed absence of the left pulmonary artery in 2 girls and 1 boy, aged 5 years, 26 months, and 20 months, respectively Of these three patients, two had tetralogy of Fallot and one, Eisenmenger complex All three had a right aortic arch and a left innominate artery All three had an obliterated vessel running from the innominate artery to the hilus of the left lung One patient had a closed right ductus arteriosus, one had no right ductus arteriosus, and one had a probable right ductus arteriosus In each of the three patients, the main pulmonary artery was continuous with the right pulmonary artery, and there was no trace of a left pulmonary artery The intrapulmonary distribution of the branches of the anomalous vessel was identical with that of a normal left pulmonary artery In two patients there was a slight, and in one a pronounced, shift of the mediastinal septum to the left The right lung was notably more voluminous than the left in one patient Grossly in all three patients, the left lung had undergone normal development It was noted that, in one patient, collateral arteries supplied the left lung In three living patients, a presumptive diagnosis of absence of the left pulmonary artery was made Eleven additional cases of absent right or left pulmonary artery were collected from the literature The following principal anatomic features were observed 1 Absence of the central or heart end of the left pulmonary artery with persistence of a normal intrapulmonary portion was associated with a variety of cardiac malformations Both in the authors' cases and in those collected from the literature there was a high incidence of an aortic arch on the side opposite to the absent pulmonary artery However, at least two of the authors' three living patients showed the arch and the apparently absent artery on the same side 2 An anomalous obliterated vessel was running from the left innominate artery to the hilus of the left lung, continuous with patent, normally distributed, elastic, intrapulmonary arteries Evidence was presented to show that the closed part of the vessel is an obliterated, left ductus arteriosus Almost certainly, the ductus portion may, on occasion, remain patent, as judged from the cases in the literature in which there was an absent right or left pulmonary artery 3 A normally developed but small left lung was observed, the size of which may be secondary in part to the decreased blood flow The diagnosis of an absent right or left pulmonary artery may be first suggested by changes noted in the routine plain films of the chest The hemithorax of the affected side may be seen to be smaller and the ribs more closely spaced, with slight shift of the mediastinal septum The affected lung may appear undervascularized as compared to the opposite lung Angiocardiography is the most valuable method of examination, but in one of the necropsy cases this technique failed to demonstrate the abnormality, presumably associated with an adequate collateral circulation Patency of the unusually situated ductus arteriosus may confuse the issue Differential oxygen consumption between the two lungs is probably very significant, but the performance of such an estimation is dependent on the age of the patient and availability of the apparatus The physiological significance of this anomaly is that the patient with one pulmonary artery absent is dependent on one lung for oxygenation, but the anomaly is compatible with life and may be asymptomatic From a surgical standpoint it would be prudent, when contemplating an aorticopulmonary anastomosis or pulmonary resection, to be reasonably certain that there is a pulmonary artery both on the operative as well as on the nonoperative side

Complement Fixation Test with a Triple Antigen for Syphilis, Tuberculosis, Leprosy or Chagas' Disease in Blood Banks J Oliveira De Almeida, J Lima Pedreira De Freitas and H Brandão Am J Trop Med 3 490 494 (May) 1954 [Baltimore]

Serologic tests are used routinely for excluding syphilitic donors in blood banks Oliveira De Almeida and associates point out that in South American countries, where leprosy and American trypanosomiasis (Chagas' disease) are endemic and the incidence rates for tuberculosis are high, the serologic examination for syphilis alone is not sufficient They describe a quantitative complement fixation test using a triple antigen, made up of cardiolipin no 72 for syphilis, Trypanosoma cruzi extract for Chagas' disease, and a tubercle bacillus extract for tuberculosis and leprosy Experimental work has been done to establish the basic principles governing the reaction by demonstrating that the specific systems react independently of the presence of other antigens Serums from 786 blood donors were tested against the triple antigen and against each one of the specific antigens, in complement fixation tests The 599 serums that did not react with the triple antigen did not show any reactivity with the antigens for syphilis, tuberculosis-leprosy, or Chagas' disease, no false negatives occurred with the triple antigen The 103 serums that reacted with any one of the specific antigens reacted also with the triple antigen Four serums were anticomplementary, simulating "reaction" with the triple antigen, 76 serums gave "reaction" with the triple antigen but did not show any specific reaction in the tests for syphilis, Chagas' disease, tuberculosis or leprosy These results could be due to the cumulative anticomplementary effect of these serums plus that of the antigens composing the triple antigen The authors feel that these results indicate that a screen test with the triple antigen should be used instead of the regular test for syphilis in areas where syphilis, tuberculosis, leprosy, and Chagas' disease are endemic

BOOK REVIEWS

Seventy Five Years of Medical Progress—1878-1953 Edited and with foreword by Louis H Bauer M D F.A C.P Secretary-General The World Medical Association Hempstead N Y Contributors Leo H Bartemeier et al Cloth $4 Pp 286. Lea & Febiger 600 S Washington Sq Philadelphia 6 1954

During the past three-quarters of a century medical scientists have learned more about the nature and treatment of disease, and about its prevention, than in the previous 3,000 years Indeed new discoveries new methods, new drugs, and new treatments now come with such startling rapidity that it is almost impossible for physicians to keep up with them Therefore most physicians must restrict their interests and studies to their own special fields of medical practice while attempting to obtain only a general idea of the outstanding advances of medicine as a whole Since this book summarizes both the story of the past 75 years in medicine and the present extent of medical knowledge it is valuable as a compilation of the medically recent past especially when viewed from the vantage point of current specialized practice, as described by specialists themselves In the field of each medical and surgical specialty, as well as in the field of general practice the material which is presented by nationally recognized authorities provides an excellent clinical summary of many of the best and most advanced techniques As an informative account of the increasing conquests of mankind in the relentless war against disease this book is highly recommended

Illustrated Review of Fracture Treatment. By Frederick Lee Liebolt A.B M.D Sc D Attending Surgeon in Charge of Orthopedics New York Hospital New York. Boards $4 Pp 229 with 605 illustrations Lange Medical Publications P O Box 1215 Los Altos Calif 1954

This book written for the medical student resident and general practitioner, is concerned with the diagnosis and treatment of fractures The author states that it is in no way complete but is merely a supplement for the standard textbooks on this subject It is a valuable guide for the beginner and might be useful to nurses in the industrial field and to others who cooperate in ancillary services Many features of this book, such as the brief section on the physiology of healing of fractures and the numerous detailed drawings of fractures and their mechanism, deserve special commendation Several methods of fracture treatment are discussed and illustrated but, in a book such as this, a complete description of all forms of treatment could not be expected The chapter on clinical examination includes history and physical and neurological examination, but unfortunately there is no general discussion of the roentgenologic examination This volume would have been more worth while if it had stressed the importance of obtaining roentgenograms of fractures after reduction, emphasis should also have been placed on obtaining roentgenograms in patients in whom pain and disability persist because frequently occult fractures and calcification in the soft tissues are thus discovered Because this book is printed by the offset method, many of the roentgenographic reproductions are not of the best quality, but the book is still the best of the primers on fractures

Energy Metabolism and Nutrition By Professor Raymond W Swift and Professor Cyrus E French Department of Animal Nutrition Pennsylvania State University State College Cloth. $5 75 Pp 264 with 16 illustrations. Scarecrow Press 3341 Prospect Ave N W Washington 7 D C 1954

Sometimes in emphasizing the fact that vitamins, minerals, and specific amino acids are indispensable for normal nutrition the fundamental necessity of the body for energy is overlooked The calory has become widely known and used in this country and abroad as a unit for measurement of heat Either directly or indirectly the heat of the body is derived from the food ingested In their article Energy Metabolism" (*Ann Rev Physiol* 5 105 1943), Dr E B Forbes and Dr LeRoy Voris stated, 'In the sense that the most conspicuous attribute of life is motion that motion is an expression of energy and that all nutrients essential to the life of animals, including man, are involved directly or indirectly in energy production, energy metabolism affords a significant point of view—a common denominator—in terms of which all nutrients may be studied and compared"

It is indeed difficult, if not impossible for the average person to remain unaware of calories On one hand he sees advertisements warning him that his excessive intake of calories will result in obesity, thus shortening his life on the other hand he is admonished to increase his caloric intake so that he will not be ashamed to be seen on the beach In addition to its concern with energy metabolism as affected by hormones, drugs and disease, the medical profession has become acutely aware of the major role food plays in the maintenance and restoration of good health

The authors of this book have brought together the various methods of heat measurement The limitations and applicability of each in modern nutritional science are pointed out The first part of the book discusses the underlying principles of calorimetry and includes a brief historical account of the development of techniques in the field The second part of the book presents the experimental methods and equipment used in direct and indirect calorimetry Part 3 is a general section on experimentation it gives typical applications of the principles and procedures discussed in the first two sections For the benefit of the student and investigator each method of experimentation includes the details of computation In addition the appendix of the book contains supplemental problems to afford practice in actual computation and to emphasize the principles involved The average physician will not find any new or startling concepts in this concise book but it should be invaluable to those interested in the actual determination of the caloric value of foods and *in metabolic measurements*

Good General Practice: A Report of a Survey By Stephen Taylor M D M R.C.P Nuffield Provincial Hospitals Trust. Cloth. $3 50 *12s 6d.* Pp 604 with 56 illustrations Oxford University Press 114 Fifth Ave New York 11 Amen House Warwick Sq London E.C 4 1954

The purpose of the survey discussed in this book was to study the best in general practice in Great Britain to analyze the findings under a number of subject headings (nonstatistical), and to present the results in such a way that the general practitioner or the student intending to become one could learn something of value about the organization and conduct of his practice The field work of the survey was carried out between February 1951 and September, 1952 and involved 30 practices with 94 physicians Many of these were small partnerships and a few were groups only one made up of as many as seven physicians The book contains much information on the nature of the better general practice in Britain, including accommodations for work available equipment laboratory work done and the method used for obtaining time off by the physicians It is virtually impossible to compare the nature of general practice in Britain with that in our own country since the traditions and facilities are in many respects quite different and the impact of the British National Health Service has no counterpart in the United States It is apparent from this book however, that most general practitioners in Britain have more paper work than we do that there are good and poor physicians among them that equipment and facilities are on the whole of poorer quality than in the United States and that many general practitioners have to see a number of patients such as most physicians in this country would consider it impossible to treat adequately To quote "It is nearly 9 o clock at night and we have been seeing patients since tea time thirty seven I say, that s excluding the certificates and prescriptions for relatives" and Slow going only one every five minutes " This book should largely fulfill the purpose for which it was intended but except for a few passages it will have limited usefulness for medical readers in the United States

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These book reviews have been prepared by competent authorities but do not represent the opinions of any official bodies unless specifically so stated

QUERIES AND MINOR NOTES

HISTAMINE CEPHALALGIA

To the Editor —*Kindly send me information on histamine cephalalgia (Horton's syndrome)*

Carl Frederick Becker, M D, Lincoln, Ill

To the Editor —*I have under my care a man in whom I have made the diagnosis of histamine cephalalgia This has responded very well to a course of diphenhydramine (Benadryl) by mouth, and at present he is asymptomatic Recently he applied for life insurance and was uprated because of the above diagnosis What is the ultimate course and prognosis in patients suffering from histamine cephalalgia and also from the commoner migraine? Is there any increased risk in such persons that would justify the increase in premium by a life insurance company?*

M D, Kentucky

Answer —Histamine cephalalgia was first fully described with illustrative cases in The Journal, Feb 1, 1941, page 377 It is a unilateral headache with excruciating, boring pain the outstanding symptom The pain is sudden and severe at the onset It is of short duration, lasting usually less than an hour, and often subsides abruptly It involves the region of the orbit and the temple and may extend to the upper jaw, occasionally the lower jaw, and even into the occipital area, neck, and shoulder It does not follow the anatomic distribution of any of the cranial nerves Lacrimation, frequently profuse, occurs, and this sign is usually associated with redness and slight edema, rhinorrhea or plugging of the nostril, and dilatation of the vessels in the painful area Beads of perspiration often are visible on the forehead above the involved eye There are no trigger zones, and scotomas, nausea, and vomiting are not associated phenomena Attacks occur once or several times within 24 hours but are more frequent during sleep The attacks tend to occur in a series and frequently on a seasonal basis So severe and frequent are the attacks of pain that many patients have contemplated suicide Histamine cephalalgia occurs chiefly in males Remissions and exacerbations occur spontaneously About 40% of patients have undergone unnecessary operations in a vain attempt to obtain relief of their pain Histamine cephalalgia should not be confused with trifacial neuralgia, "sinus headache," or classic migraine

Ideally treatment should alleviate the pain of the acute attack and prevent subsequent attacks The intravenous administration of 1 cc of dihydroergotamine (DHE 45) frequently will abort an acute attack in one to five minutes, if it is given at the onset of the attack The breathing of 100% oxygen will alleviate mild attacks, if it is used promptly A rectal suppository that contains 2 mg of ergotamine tartrate and 100 mg of caffeine, if used at bedtime, may prevent nocturnal attacks Histamine "desensitization," however, is the treatment of choice for preventing future attacks The schedule for histamine desensitization has to be tailor-made to fit each patient The procedure seems simple, but it is often fraught with many pitfalls, especially when a patient has been treated more than once There is apparently no increased risk in patients with histamine cephalalgia or migraine from the standpoint of life expectancy

CIRCUMCISION

To the Editor —*Much has been written regarding the advisability of circumcision in the newborn Should all normal, healthy male infants be circumcised?*

A E Parks, M D, Fordyce, Ark

Answer —The question as to whether all normal, healthy male infants should be circumcised has been a moot one throughout all time, and one will find enthusiastic advocates both for and against this procedure As a urologist, who sees many patients in later life with various difficulties of the external genitalia, this consultant feels that a properly performed circumcision would be advantageous to all normal, healthy male infants

CANCER OF THE PROSTATE

To the Editor —*Will testosterone initiate carcinoma of the prostate? Is it not a fact that after middle age the output of androgen is markedly lessened, and, therefore, the injection of a synthetic androgen would only be a replacement rather than an overstimulation? There is no question that many middle-aged men are markedly helped by injection of an androgen*

M.D., Washington, D C

Answer —Attempts to produce true neoplasms with testosterone in experimental animals and man have been unsuccessful There is no clinical or experimental evidence that exogenous or endogenous testosterone causes carcinoma of the prostate. The incidence of carcinoma of the prostate in men increases with age, whereas the endogenous production of tesetosterone and estrogen decreases In the aging man the shift in the ratio of androgens to estrogens favors the latter, but whether or not this has any significance in prostatic cancer or hypertrophy is speculative Experimentally, however, large doses of estrogen produce benign adenomatous growths of the prostate that can be inhibited or caused to regress by giving testosterone The role of the pituitary gonadotropins will be determined when more purified gonadotropins become available The improvement reported following the use of testosterone in benign prostatic hypertrophy may result from the disappearance of congestion in the prostate and an improvement in bladder function, the latter being secondary to the anabolic effect of testosterone The administration of testosterone or estrogen will produce no appreciable change in the size of the gland once hypertrophy has occurred Although the cause of benign prostatic hypertrophy is unknown, the presence of a functioning testis is necessary for its development, as no cases have been reported in eunuchs, however, castration has no effect on established benign prostatic hypertrophy

TOMATO JUICE AND KIDNEY STONES

To the Editor —*An elderly patient with renal calculi, unable to take citrus fruit, drinks a pint of tomato juice daily Would that be contraindicated on the supposition that the stones may be oxalates? Would the habitual use of calcium carbonate as a gastric alkalizer have any affect on the formation of renal calculi?*

M.D, West Virginia

This inquiry was referred to two consultants, whose respective replies follow —Ed

Answer —Elderly patients with renal calculi often do not follow dietary instructions well If this patient is unable to take citrus fruits, certainly tomato juice daily in the amounts mentioned should be discontinued, because tomatoes are high in oxalates Grape juice may be substituted, as it is not high in oxalates One must remember too that some of the oxalates in the urine may be endogenous The habitual use of calcium carbonate, if it renders the urine continuously alkaline, may favor the formation of renal calculi The incidence of renal calculi is not definitely increased in patients on a type of Sippy diet, because apparently the milk and cream keep the urine acidified

Answer —The elderly patient with renal calculus should not drink a pint of tomato juice daily if he has vesical irritation, because one of the most irritating things to the urinary tract generally is tomato juice If the stone were pure oxalate, it would not show in the roentgenograms Oxalate and acid stones

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The answers here published have been prepared by competent authorities They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply Anonymous communications and queries on postal cards cannot be answered Every letter must contain the writer's name and address, but these will be omitted on request do not show in the roentgenogram If a person has an alkaline stone, the taking of calcium carbonate is not advisable because this will add to the calculus Since the patient is elderly, it would be advisable for him to be on an acid ash diet, in which case tomato juice is indicated, if he has a renal calculus that is visible in the roentgenogram and is not dangerous to his life or health Tomato juice, being acid, is perfectly proper for this elderly patient to take if his stones are alkaline, and, if they show in the roentgenogram, they must certainly be

PREECLAMPSIA

To the Editor—*Please send any new information you have on the treatment of preeclampsia A patient who is about three and one-half to four months pregnant bore twins in 1949 and had preeclampsia and convulsions after the delivery She states that she had convulsions after the delivery off and on for the first 24 hours*

Carl B Cone, M.D , Vancouver Wash

Answer.—The fact that the patient previously had preeclampsia and convulsions in 1949 does not of course mean that she will necessarily have preeclampsia in the present pregnancy In view of the history, this patient should have more than ordinary prenatal care Her blood pressure and urine should be checked at intervals of two weeks until the seventh month and weekly thereafter Likewise, the weight should be carefully controlled daily by the patient herself Treatment should be instituted if there is any undue gain in weight, elevation in blood pressure, or albuminuria There is nothing new about the treatment of preeclampsia. The leading textbooks of obstetrics contain the treatment that is now considered to be satisfactory

MORNING ERECTIONS

To the Editor—*Are persistent morning erections considered normal? A 62-year-old patient complains that these sleep-disturbing erections have become particularly disturbing following a suprapubic prostatectomy in 1949 for a benign hypertrophy The postoperative course was aggravated by a Proteus infection of the urinary tract but this has been brought under full control The patient is well satisfied with results of surgery He has nocturia once a night if at all There were three attacks of severe colicky pain the last in December, 1951 Pyelograms during that period revealed no calculi, but after the first attack a right sided hydronephrosis was seen which subsided spontaneously Urine examinations were normal The patient's erections were not alleviated by sexual intercourse if engaged in before retiring His general condition is satisfactory He is employed drinks very little has been a nonsmoker all his life and is normotensive The blood serum was normal and there was no history of venereal disease His only other complaints were pyrosis and flatulence of over 30 years' duration What can be done to relieve him? Phenobarbital ½ grain (0 03 gm) does not help*

M D California

Answer—Morning erections are physiologically normal and may be observed in any age group Bladder distention does not play an important part in producing the erections inasmuch as similar distention during wakeful hours produces no such effect In this patient the cause of the disturbing erections is not apparent Mention is made of three attacks of severe colicky pain but the distribution of the pain is not noted However, if the pain was not centered around the perineum, it probably has no relation to the erections In the absence of systemic disease, such as leukemia, to account for the erections the presence of a lesion in the posterior urethra should be ruled out Endoscopic examination is therefore indicated If these studies fail to reveal a cause for the erections the administration of estrogens may be necessary Diethylstilbestrol in doses of 5 mg daily, or any other estrogen in equivalent dosage will probably eliminate the morning erections The disadvantage of administering estrogen is that it makes the patient totally impotent This can be overcome, once the problem is under control by periodic withdrawal of the drug and readministration, if and when necessary

MYASTHENIA GRAVIS

To the Editor—*A woman has abnormal fatigability and weakness After she rests, her strength returns She feels strongest in the morning The muscles of the neck, throat tongue eyelids, eyes, and extremities are involved She has bilateral ptosis and expressionless face and has difficulty swallowing, chewing and talking There are no signs of atrophy or sensory changes With quinine these complaints were exaggerated While she appeared to have myasthenia gravis with injection of neostigmine (Prostigmine) 0.5 to 1 mg her symptoms increased in severity After 45 minutes the reaction gradually ceased, and she felt better This reaction occurs every time she has an injection of neostigmine According to the literature the results must be immediate However the patient feels well for 7 to 10 days and then requires another injection She goes through the same reaction but goes along without any complaints of weakness for at least a week Because of this initial response I feel that the diagnosis is not correct However when she is receiving therapy with neostigmine orally she has no complaints of weakness and states that she feels better than she felt in her earlier years What are some of the diseases that could be aggravated by neostigmine?*

Joseph V Waitkinus M.D , Woodhull Ill

Answer—The patient described has a history strongly suggestive of myasthenia gravis, including the response to quinine, but the intramuscular injection of neostigmine is followed by an atypical reaction the components of which appear to be a mixture of myasthenic symptoms combined with a cholinergic response The cholinergic features would be expected to lessen at the end of 45 minutes or at about the time the patient experienced subjective improvement. It is untenable to believe that a single test dose of neostigmine would cause relief of myasthenic symptoms for a 7 to 10 day period In view of these comments and the alleged relief of symptoms by an unknown oral dose of neostigmine, the possible functional origin of many of the patient s symptoms is suggested Pursuant to this possibility, testing of the patient with edrophonium (Tensilon) chloride (Osserman and Kaplan. *J A M A* 150 265 [Sept. 27] 1952) and some other agent having a nonspecific action in myasthenia gravis, as for example nicotinic acid, 20 mg intravenously, would be a logical approach in resolving the problems presented The most common cause of death from myasthenia gravis is respiratory failure, to which cardiac features are secondary This may develop quickly and unpredictably, but it is usually not instantaneous Weakness with cholinergic symptoms may be caused by an overdose of neostigmine in patients with myasthenia gravis The dose used in this patient is not sufficient to cause an aggravation of myasthenic symptoms unless other drugs having a similar pharmacological effect had been administered

CLUBBING OF FINGERS AND TOES

To the Editor—*Clubbing of the tips of the fingers and toes is observed in patients with long-standing pulmonary or cardiac lesions supposedly as a result of a low oxygen saturation of the arterial blood Nowhere can I find an explanation of the mechanism of production of this phenomenon I shall appreciate your opinion*

M.D Illinois

Answer—The exact cause of the clubbing of the fingers (hippocratic fingers) and ends of the toes is unknown Swelling of the soft tissues is dependent on the unique capillary circulation in the ends of the digits, where some disturbance of the gas exchange probably occurs The clubbing of the fingers and toes is usually limited to the soft tissues of the terminal phalanges and may be associated with thickening and curving of the nails Clubbing of the fingers and toes in which bone changes have occurred and the simple type of clubbing both apparently have a common cause These conditions occur in chronic pulmonary disease, as well as congenital heart disease and may even occur in acquired heart disease In congenital heart disease cyanosis usually precedes the clubbing of the finger tips and ends of the toes

ACUTE LYMPHATIC LEUKEMIA AND HEREDITY

To THE EDITOR —*Should a couple have another baby after the loss of one child who, at the age of 6, died of acute lymphatic leukemia? The child was, except for a malformed hand, healthy with only minor ill conditions Both grandparents were first cousins, and cases of diabetes and hypertension run in both families The young couple want another child but are afraid their second child may be prone to some hereditary defect*

M D , New York

This inquiry was referred to two consultants, whose respective replies follow —ED

ANSWER —There is no contraindication to this couple having another baby There is no good evidence that acute lymphatic leukemia is hereditary The malformed hand could possibly be hereditary but, in the absence of a complete description, would more likely be due to some sort of trauma or possibly intrauterine virus infection One would have to admit that the diabetes and hypertension might possibly be transmitted to a child, particularly in view of the fact that the grandparents are first cousins However, if the diabetes is on an arteriosclerotic basis, this is unlikely The risk of transmitting hereditary defects to a child in this instance does not appear to be great enough to justify not having more children

ANSWER —The decision as to whether or not these parents should have another child must be made by them The following information may help them to make their decision So far as can now be established, the chance of another child having leukemia would be extremely slight There is at present little convincing evidence that this disease in human beings is inherited The susceptibility to diabetes is probably generally inherited as a Mendelian recessive although cases of Mendelian dominance have been reported Some investigators have concluded that susceptibility to diabetes is inherited as a dominant trait with low penetrance It has also been considered that the mild cases are due to the heterozygous condition and the severe cases are due to the homozygous recessive condition With simple recessive inheritance, both parents in question would at least be carriers of the defective gene and each child they have stands one chance in four of being susceptible It is not certain, however, that the parents will not still have diabetes, since it is usually a disease of later life If the disease develops in either parent, the chance of the child inheriting a susceptibility for it will be increased to one chance in two Should diabetes develop in both parents, all of the children would be expected to inherit the susceptibility Whether or not they would have diabetes would depend on environmental as well as genetic factors The part insulin plays in the control of diabetes is a factor that should also be considered by the parents

"OZONE MACHINES"

To THE EDITOR —*I would appreciate knowing what "ozone machines" are and whether or not there is any use for them in medicine* *M G Radewan, M D , Wenatchee, Wash*

ANSWER —In the popular vocabulary, "ozone machine" means an electrical apparatus in which air is drawn over a generator of ultraviolet radiation so that some of the oxygen (O_2) is converted into an allotropic form (O_3) The latter, called ozone, is extremely active chemically and destructive biologically, its irritating smell can be recognized in concentrations as low as one part per million, and it should not be tolerated in higher concentrations in occupational situations It is much more toxic than carbon monoxide Ozone generators have been used to cover up the odors caused by crowding, poor ventilation, and careless housekeeping in institutions, but the concentrations that can be used safely in occupied rooms are ineffective against common malodorous substances like butyric acid and against many important types of bacteria Three forms of apparatus for this purpose were examined by the Council on Physical Medicine and Rehabilitation and were not accepted As was stated in an editorial (*J A M A* **61** 1045 [Sept 27] 1913), ozone "produces no reaction in the human organism that can be regarded as in any degree beneficial "

"NAIL SPITTING" BY LATHERS

To THE EDITOR —*A 38-year-old man with hypertension of 160/110 mm Hg and tachycardia at rest works in the lathing trade, during which work he "spits nails" When working with rock lath he uses a Jackson bar nail, which has a white coat that coats the mouth and lips Can intoxication occur from prolonged exposure to these nails and is there any possible effect on the cardiovascular system?*

Thomas B Hill, M D , Lowell, Mich

ANSWER —In times past "tack spitters" and "nail spitters" have acquired lead poisoning from lead in the metal or possibly from coatings on the metal In the present instance, if lead poisoning exists, which is unlikely, hypertension might appear as one manifestation of that disease in chronic form Many lathing nails are galvanized, and subsequently zinc oxide may form as a powder on the surface Manifestly small quantities of zinc oxide would be harmless and would not be regarded as the cause of the hypertension Some wire nails without galvanizing, in the process of extrusion, are lubricated by industrial soaps Should this soap appear on the nail as driven, it is without significance to health In any case, the practice of "tack" or "nail spitting" is not favored if for no other reason than the prospect of dental damage, the front teeth becoming serrated

CALLUS FORMATION

To THE EDITOR —*What is the most effective treatment for callus formation at the angles of fingernails—in the inner angle of middle finger? This callus also extends subungually*

Allan Roos, M D , New York

This inquiry was referred to two consultants, whose respective replies follow —ED

ANSWER —The first step in treating callus formation at any site, including the angles of the fingernails, is to remove any factor that seems to be causing irritation In the case of the periungual area, this is often due to the habit of "picking" the skin at this site, this may be avoided by covering the affected part with adhesive tape, which may be left in place (change every second day) for as long as necessary to break the practice The fact that the callus extends subungually suggests that the writer is referring to a periungual and subungual verruca In this case, the probable treatment of choice is the removal of the wart with careful electrodessication, this is a more difficult procedure than the removal of verrucae on other sites of the hand, and the operator should be skilled in doing the procedure

Finally, a callus may be removed at any site by the application of salicylic acid in appropriate concentration One satisfactory method is the use of 40% salicylic acid plaster Cut the plaster to the exact size of the site of the callus, apply, and hold in place with adhesive Remove after about three days, soak part in warm water, and the softened callus is peeled off This may be repeated as often as necessary As noted above, the callus will recur if the source of trauma is not removed Usually, the application of salicylic acid plaster will not be curative for periungual warts

ANSWER —Some persons form calluses easily at pressure areas, such as finger tips, palms, and soles In a few, hypothyroidism may be a factor and the administration of thyroid is helpful Violinists and others subject to callus formation at the finger tips get relief by the use of a pumice stone This is a simple and practical method A little experience with it will teach the user just how far to go to avoid irritation The callus can be softened with a 5 to 15% salicylic acid application and then pared away Another way of doing this is to apply fitted strips of salicylic acid plaster kept in place by adhesive or Scotch tape These may be left on two days or only overnight to soften the callus before paring Freezing the callus lightly with a carbon dioxide pencil after softening it may slacken its regrowth At times chronic dermatoses, such as psoriasis, fungous infection, or eczema, may simulate callus In such cases there are likely to be some accompanying telltales, such as changes in the nails, when the contiguous soft parts are involved

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HOSPITAL PRIVILEGES FOR GENERAL PRACTITIONERS THROUGH A SURGICAL EVALUATION COMMITTEE

CHAIRMAN'S ADDRESS

Frederic Ewens, M.D., Manhattan Beach, Calif.

There has probably been no time in the history of American medicine when one component part of medicine has been more viciously bombarded than has the general practitioner in the past few years—and biblically reminiscent—by his own brother. From a philosophical point of view, it has always been a challenge to outclass a good man in any field of endeavor, and medicine is no exception. In viewing the entire panorama of the past five years, I am inclined to believe that few of the injustices performed are the desire of any one specialist or even a majority of the specialists in any one organization. The officials of the American Medical Association have not sanctioned the criticisms heaped upon the medical profession in general and the general practitioner in particular, but I am inclined to question the attitude of those who control or those who speak in behalf of the specialty groups. Far too many times the individual is sacrificed for the organization's desire for power and prestige or for the director or executive secretary who wishes to foster his own personal ambitions. I have seen medical study clubs formed with only one objective in mind, to convene, study, and discuss medical problems, slowly transform into a bitter collection of one-sided personalities so remote from the original group as to be hardly recognizable. Perhaps it would solve a host of problems if tomorrow we should awaken to find all separate groups of physicians disbanded and only one remaining, the American Medical Association. Unfortunately at the moment this is too much to expect, and we are forced into keeping astride with the specialist, the special atomic specialist, and similar groups. For example, one of my friends offered to admit me as a charter member in his new specialty group, the Interplanetary Surgeons.

DISCRIMINATION AGAINST GENERAL PRACTITIONERS

In the past seven years, you have heard of the growth of the American Academy of General Practice. If you have read THE JOURNAL, you will note the increase in numbers of hospitals incorporating general practice sections. Medical skill has improved so much that I am sure general practitioners are capable of giving good medical care to 85% of the nation's ill. The public is demanding more and more capable family doctors. I do not agree with the idea that family physicians should assume the role of family counselors and refer all patients to our specialist friends, nor do I agree completely with Dr. Paul White, who says, "The worst doctor today is better than the best doctor of 50 years ago." However, I do say that the general practitioners today are superior in scientific knowledge of medicine to their counterparts of yesteryear. The philosophy of medical care has always been to give the patient the best care possible and a cure of his ailment if it is at all possible. All physicians believe in that philosophy, both general practitioners and specialists. I believe that a young man should be trained in a specialty if he so desires. It should make him better trained when he finishes his residency than the intern who just finishes his stay in the hospital. Yet neither one is trained in the simple complaints of patients. The young physician who has just finished his internship makes mistakes, but they are usually minor. The older men make mistakes as well. During my 34 years of practice, I have seen many of these men, who now complain about useless surgery, doing that very thing.

Not only the public is being bombarded with discriminatory stories against the general practitioner but the hospital administrators get their share of stories. Some hospital administrators are influenced by them to keep men off the staff or may refuse them privileges regardless of their ability. Physicians lucky enough to practice in communities without such problems cannot appreciate these difficulties. I am acquainted with physicians who through years of experience and training are qualified but are denied privileges in hospitals because they do not belong to a specialty group. In my work in the General Practice Section and as a past official in the academy in the state of California, I have listened to many general practitioners complaining that they can not get on the staff of a metropolitan hospital, and, if they are lucky enough to be admitted to the staff, they cannot

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Read before the Section on General Practice at the 103rd Annual Meeting of the American Medical Association, San Francisco, June 24, 1954.

get on the surgical staff or advance in their staff status During these conversations, they tell me that they wonder if they made a mistake in becoming a general practitioner This is discouraging I remember standing in back of two ex-G I physicians taking a residency in the specialties During their conversation one of the young physicians said, "I can't afford to spend the time in a residency, but if I don t get a Board I can't get on the staff of my hospital at home " It is not my purpose to discuss the argument that all physicians should be permitted to belong to the staff of their hospital irrespective of their ability My point is that all physicians applying should be judged according to their ability, as well as to their school, character and similar considerations Hospital administrators tell me that they are not to blame if a physician is not on the staff They place the blame on the hospital executive committee of the staff and its credential committee Most physicians know the actions of the staffs and their committees in the large hospitals, let it suffice to say that the general practitioner does not fare well

Dr John Fulton of Yale told of a well-known dean with many forward-looking ideas who, being frustrated by his faculty, exclaimed "It is easier to move a cemetery than change the curriculum " Applying this thought to the rules and regulations of constitutions of hospitals in many places in the United States, it would take an act of God to permit a capable general practitioner to perform surgery or even to get on the staff One can appreciate the tremendous education and effort needed to change the present status of the general practitioner in some hospitals The hospital association has said their responsibility is to see that the patient gets the best possible service We must answer this statement with the fact that a capable, conscientious family physician is capable of giving that service

SURGICAL QUALIFICATIONS

During the past six months a new hospital was built about 10 miles from my home It was to be an open hospital for general practitioners, many of whom worked hard to raise funds for the hospital When the hospital formed its staff, the general practitioner was told that he could not do the work he felt he was capable of performing The situation in this hospital has now become very serious After being in the midst of the problems besetting the work of the general practitioner in various hospitals and in our hospital in particular, I felt that a solution should be conceived that would be fair to the certified man and to the qualified general practitioner and that would give the young general practitioner an opportunity to qualify himself and allow him to advance in his status at the hospital Since the bone of discontent with physicians seems to center around the department of surgery, it was my belief that a special committee should be instituted to handle the surgical problem

In the years before we instituted the new committee, our small hospital placed a new physician on the staff according to the school from which he graduated and the character references he presented He was permitted to do only minor surgery unless he was certified After he had spent a selected number of years in surgical work, he was permitted to apply for senior rating The senior men who assisted in his surgery were then asked if they thought him qualified to become a senior surgeon If there were no dissenters, he was placed on the senior staff This senior rating permitted him to do major surgery Many men listening to a statement of this sort would immediately say, "This is intolerable and the results must have been terrible " During my years of practice most of my work has been in obstetrics and gynecology After hearing the furor raised about the poor ability of the general practitioner, I made a 10 year study of the maternal deaths, the infant deaths, and the results of breech presentations I wanted to compare these statistics with the average in the state and with a hospital whose work was done by specialists These are the results maternal deaths amounted to 0 06 compared with the over-all 3 in the state, infant mortality amounted to 1 5 compared to 3 in the state, breech presentation statistics were equal to those taken from a large specialty hospital in New York City The statement that the work must be terrible can thus be refuted, and we can assure the public that the general practitioner is capable of giving good medical care in our hospital

Evaluation Committee —After World War II, we began to get a number of young certified men in our district. They were admitted to our staff, and soon thereafter our problems multiplied Criticism of the older men and new men on the staff was heard, and the surgical committee's work was increased I decided that it was time to draft a preliminary amendment to the constitution of our hospital After months of meetings, a special committee that was not bound by the old traditions of the credential or surgical committees was formed It would relieve the credential committee of deciding on the ability of the new applicant and would permit the surgical committee to check the decisions of the new committee The amendment would also permit adjudication of any discussion by the new committee as well as the grievance committee before it exploded in the executive committee of the hospital

To add another committee to the already heavily loaded hospital staff at first seemed a bit superfluous to the credential and surgical committees They had many arguments against it, all of which resolved themselves after months of debate The primary purpose of this committee was to make it possible for the new applicant to show the surgical committee that he could do the surgery that he claimed he was capable of doing, whether he was certified or not In order to give him this opportunity, the committee so chosen was to consist of an equal number of both general practitioners from the senior surgical staff and the certified surgeons from the senior staff This committee would be referred to as the Surgical Evaluation Committee The first paragraph of the amendment reads as follows "The surgical evaluation committee shall consist of six members and the chief of the surgical committee who shall be chairman of this committee The members of this committee shall consist of three surgeons who are diplomates of American specialty boards, fellows of the American College of Surgeons, or fellows of the International College of Surgeons, together with three general practitioners who are members of the senior surgical group " From the type of membership of this committee, it is evident that there can be no complaints that there are no general practitioners on the committee to judge, nor can they say the specialty groups control the decisions

The next paragraph in the amendment makes it mandatory that each member serve for a term of three years and that the term of office be staggered so that there will always be men on the committee who are experienced in judging an applicant This reads as follows "The term of office of the members of the surgical evaluation committee shall be three years Each year two members will be appointed for a term of three years The original appointments shall be for one, two and three years The appointments to the committee each year shall be one from the certified group and one from the senior surgical staff of general practitioners "

Group Classification —After developing the amendments to the constitution this far, we began to get into trouble Many physicians were undecided about the number of classifications we should have in our surgical department. Opinions on the necessary numbers ranged between 3 and 15 In a hospital near our locality, they classified their surgical staff into three groups In our hospital we classified the staff into four groups, however, the number of groups necessary is debatable The more groups decided on the better chance the committee would have to classify the applicants The smaller the number of groups the simpler it would be for the superintendent or surgical supervisor to control the surgical schedule The certified surgeons preferred the three groups The Hawthorne Hospital Constitution, which uses three groups, reads as follows "Group classification The surgical evaluation committee shall tentatively classify all applicants for surgical privileges into group I, group II, group III for a term of six months Permanent appointments shall be made after the six months tentative period, and if a review of the work done is acceptable to the preceptors assigned to observe and a favorable report is submitted to the surgical evaluation committee who forwards the report to the executive staff "

We believed that the policing of the work during the probation period was part of the responsibilities assigned to the surgical committee, and we felt that the chairman of the surgical committee would be in a better position to assign capable men from the surgical staff to the job of observing Therefore we placed the following paragraph in at this point "The chairman of the surgical committee shall assign three qualified senior surgeons from group I and group II to observe and return a written report on the candidate who has been tentatively classified by the surgical evaluation committee "

The method used in determining who should be classified in group I was simple The certified surgeons laid down the criteria that all men who were certified by the American Boards, American College of Surgeons, or the International College of Surgeons should be in this group After much discussion they accepted the criterion that any surgeon who by reason of training and years of experience could do any type of major surgery should be included in this group Therefore we have defined group I in our amendment as follows "Group I—Applicants shall be those surgeons who are certified by the Boards of Surgery fellow of the American College of Surgeons fellow of the International College of Surgeons those surgeons in a specialty group and those surgeons who have by training or years of experience qualified to do any type of major surgery Any major surgery beyond their specialty must have another member of group I to share responsibility "

The classification of members in group II caused difficulties Those physicians in the first classification felt that we should use the same criteria that were used in the early days of the American College of Surgeons and the International College of Surgeons, a proper number of major surgical procedures had to be done under qualified preceptorship, with each case written completely and the results satisfactory I do not know of anyone but the most rabid opponent who could object to this idea Therefore it was decided that the amendment would read as follows "Group II—Applicants for this group shall be general surgeons who have by years of experience or training qualified to do general surgery The minimum requirement of training for this classification shall be three years or more of graduate training in general surgery with a recognized qualified surgeon under preceptorship plan acceptable to the evaluation committee and assurance that the candidate has done at least 100 major operations of various types in which he is the responsible surgeon, all of which have been carefully recorded and show acceptable results "

Group III applicants were all new applicants to the staff who wished to do surgery and who did not limit their work to the nonsurgical specialties It was felt that nonsurgical specialists should apply for surgical privileges They were considered general practitioners if their surgical work did not exceed 10% of their practice Following are the requirements for group III "Group III—Applicants for this group shall consist of all surgeons and general practitioners who do surgery but do not have the qualifications for group I or group II Surgeons in this classification shall have a member of group I or group II as an assistant in major surgery Any surgery undertaken with which the surgeon is not familiar or has had only precursory experience must have as an assistant a member of group I or group II who is well versed in that particular field Any infraction of these rules calls for severe disciplinary action by the executive committee of the staff Any member of this classification may act as assistant in any major surgery "

Preceptors —I have heard young men complain of their lack of opportunity to improve their surgical ability, that qualified surgeons would not teach them surgery They were told to go back and take up a residency in surgery These young doctors, who had families, told me that they could not afford to leave their families since they were not economically able to study They said that, since they had to have performed 100 major operations, it made it difficult to raise their classification unless a qualified preceptor would devote the time and energy to teach and assist them so that they would be able to have 100 major operations in three years' training We had trouble convincing the surgeons to devote their time in preceptorship unless they received adequate compensation We therefore permitted the surgeon who was on

the preceptor list to make any arrangement about compensation that was satisfactory to himself and to the young doctor There were cries of split fees, but since the young doctor acted as assistant for part of his preceptorship we did not feel that this situation was breaking ethics any more than it did in graduate school training or in clinics where the same conditions prevailed When the preceptor felt that the young physician was qualified, the young physician was permitted to act as the surgeon himself

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COLOR TELEVISION IN MEDICAL EDUCATION

A REPORT ON "TELECOLOR CLINICS"

Arthur I Holleb, M D
and
Frances B Buch, New York

Between Oct 21, 1953, and June 2, 1954, the American Cancer Society, in conjunction with the Columbia Broadcasting System, presented "Telecolor Clinics," a series of 30 one hour, closed circuit, network color television programs for physicians The first 15 programs emanated from a studio in the Francis Delafield Hospital of the Columbia-Presbyterian Medical Center, New York, and the remaining 15 from a studio in the Memorial Center for Cancer and Allied Diseases, New York The programs were televised simultaneously to a network of specific receiving sites in New York, Philadelphia, Pittsburgh, Boston, Toledo, Ohio, Detroit, and Dearborn, Mich A projector television receiver with a screen measuring 4½ by 6 ft was installed in an auditorium at each receiving point (fig 1) These screens can accommodate an audience of about 400 persons

Each program concerned some phase of cancer, with emphasis placed on the importance of early diagnosis and prompt treatment Color kinescope recordings (16 mm movie film with sound) were made of each program so that one hour teaching films would be available for subsequent use by county medical societies The programs were televised from 5 to 6 p m each Wednesday Halfway through the series a direct question and answer period was included The audience at a selected receiving site was invited to submit questions, which were telephoned to the studio while the program was in progress These questions were answered on the air by the participating physicians at the close of the presentation Attendance at "Telecolor Clinics" broadcasts received approval for informal study credit by the American Academy of General Practice The medical content was designed to be of interest primarily to the general practitioner Audience reaction cards were distributed at each receiving site for viewing physicians to register opinion on medical content, over-all presentations, and personal value It is estimated that 30,000 physician visits were made to the entire series, an aggregate average audience of 1,000 physicians per program On the basis of these attendance figures it is evident that "Telecolor Clinics" was viewed by one of the largest medical audiences in the history of professional education

The preliminary planning of medical content and visual material on each program was done at three meetings with the participating physicians, during which an

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This article was prepared at the request of the *Committee on Medical Motion Pictures* outline of the program was developed An extensive rehearsal schedule requiring considerable physician-time was prepared several months in advance of each program to avoid conflicting engagements Approximately nine hours of rehearsal were held before the day of the program On program day, the only day of camera rehearsal, the physicians were requested to be available from 9 a m to 6 p m At first glance, the over-all time devoted to preparation of each program may seem excessive, however, it soon became apparent that this amount of time was mandatory to achieve a smooth, coördinated production that would be an effective teaching tool when used later as a movie film Occasionally short cuts were arranged for those participants who had had previous experience in the field of television Throughout the series the C B S field sequential system of color television was used The usual microwave television relay circuits of the New York Telephone Company were employed The program was microwaved from the originating hospital to the Empire State Building and thence distributed to C B S network facilities leased from the American Telephone and Telegraph Company At each receiving site the program was microwaved from the network terminus to the local auditorium It is the purpose of this report to present the results of experience with the physical organization of the series and data relating to the methods of preparation and presentation of visual material through the medium of color television

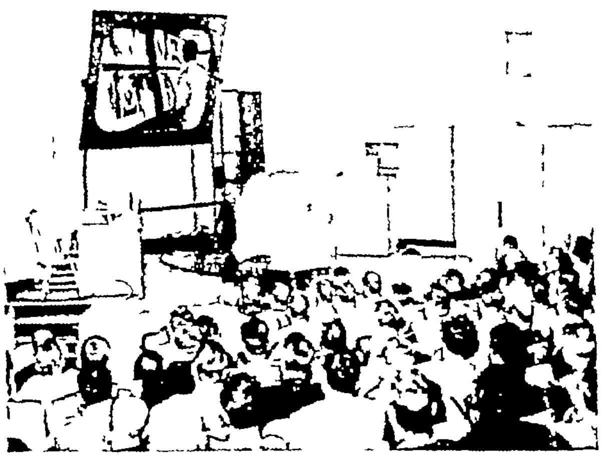

Fig. 1—Boston audience viewing Telecolor Clinics on giant screen projection receiver

STUDIO FACILITIES

The studio at the Francis Delafield Hospital was constructed in the basement of the building An adjacent room served as a control room At the Memorial Center the hospital auditorium was converted into a studio and control room by removing the seats and building a soundproof wall across the room Kinescopic equipment at both institutions was housed in rooms immediately adjacent to the control room Roughly 1,300 sq ft of space were required at each hospital to house the television operation One of the greatest difficulties encountered was obtaining adequate ceiling height for hanging lights 12 ft is an absolute minimum Actual studio construction was assigned to contractors who were experienced in the design and requirements of television studios

Lighting and Staging—Lighting problems were similar to those encountered in black and white television with the exception that slightly greater light intensity is required to yield good color reproduction In addition, the intensity of the lighting must be maintained as uniformly as possible, this can be likened to the preparation of color movies Problems of wiring and electrical circuits were resolved by the engineers of C B S, and installation was done by electrical contractors Four different sets were used, these consisted of three 5 ft 9 in sections each, with a window section and joining columns and corners All sets were interchangeable and relatable Draperies, roll screens, and folding screens were also used to join areas The sets were made of fiberboard or canvas on wood frames The latter proved entirely satisfactory, and although they required greater care in handling, they were lighter, less expensive, and more easily stored Background colors are extremely important, because they affect the color of objects and persons seen in the foreground Cool colors, such as light blue, gray-blue, and soft green were found to be most satisfactory A tiled examining area was prepared, as well as conference and office study areas of varying degrees of formality (controlled by accessory decoration) The usual white laboratory coats could not be used, because they produce excessive halation in the television picture This difficulty was overcome by dyeing the coats a light gray that appeared white on the screen

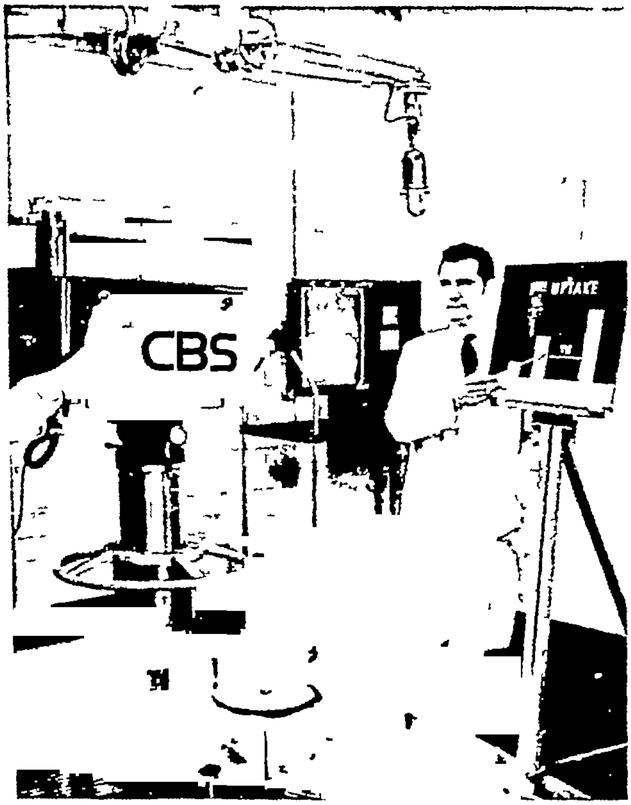

Fig. 2.—Pedestal type studio camera and arm of perambulating boom in operation during typical broadcast.

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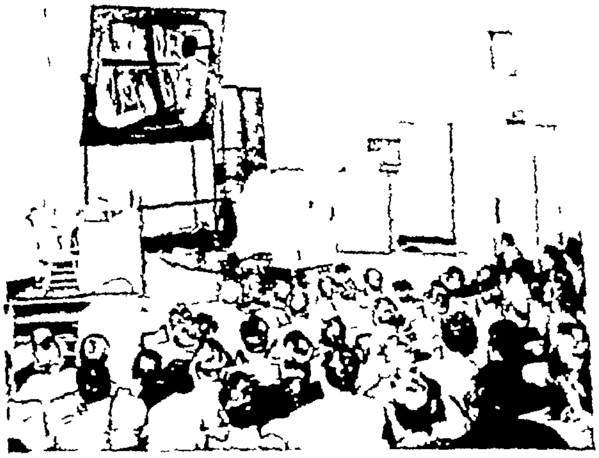

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In laying out material for a graph or chart of 18 by 24 in dimensions it is well to design the layout with a margin of at least 2 in on all sides, e g , 14 by 20 in On such a chart or list the printed matter is limited to 7 lines of type, and 15 letters to a line This requires simplification of content, as well as careful abbreviation of words Charts and graphs in medical journals are designed for study and referral, they can and usually do contain a great deal of information When such material is used on television it must be condensed to make a single point or indicate a trend If more than one point must be made it is better to prepare two simplified charts that are readable Simplification is also essential in preparing anatomic material and other types of representative art work Fine detail takes considerable time in preparation and is, therefore, expensive, more important, it may fail to reproduce well

Backgrounds, Overlays, and Surgical Specimens —Although solid black areas or backgrounds are undesirable in black and white television because of "blooming," they work well in color television After experimenting with both gray and colored backgrounds for renderings, black was chosen because it gives maximum brilliance to rendered area, the screen outline offers a minimum of distraction, and the black background is easier to clean or retouch

Frosted acetate overlays with surface drawings were used frequently to superimpose graph lines, add additional anatomic detail, describe operative procedures, or allow the physician to draw with colored chalk on a basic diagram (fig 4) The overlays were placed directly on the surface of art work The following disadvantages of overlays were noted 1 Renderings directly on the overlay are extremely fragile, they scratch and soil easily under studio handling 2 The acetate tends to buckle under the heat of studio lights and may cast disturbing reflections 3 Each layer of acetate tends to gray the area underneath, lightening the dark areas and darkening the light areas, thereby reducing the definition of the original Alternatives used included opaque "hang-on" areas in sections and jigsaw-type "pull outs" where applicable The presentation of gross surgical material offered no major problems Operating room and autopsy specimens were kept frozen until the afternoon of the program, at which time they were allowed to thaw The specimen was pinned to a cork board and demonstrated in the routine manner Old specimens or those that had been fixed in formaldehyde were unsatisfactory because of color loss and lack of flexibility

Black and White Photographic Prints —Black and white photographic prints were avoided unless they made some very specific point, e g , an old case report before the days of color photography or an infrared photo to show distended veins A matte finish is recommended to prevent surface reflections An acetate overlay may be used when the print is glossy

SPECIAL TECHNIQUES

Plaster anatomic models were used effectively to identify anatomy, explain operative procedures, demonstrate techniques of radiation therapy, and illustrate diagnostic methods These models are standard equipment at most medical schools and some supply houses and are readily utilized in the medium of television Sponge rubber models have opened up a new field in visual education In addition to the advantages of the plaster model, the sponge rubber model has flexibility that allows the insertion of an instrument or examining finger Techniques such as proctoscopy can be shown on a sagittal section pelvic model or bronchoscopy on a corneal section lung model The model can be sculptured from blocks of sponge rubber and then painted to provide a life-like quality

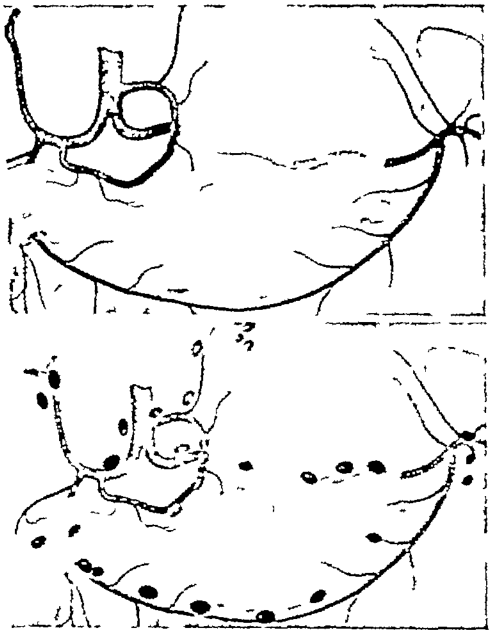

Fig. 4 —Top diagram of gastric blood supply Bottom, acetate overlay superimposed to show lymph node distribution.

The magic board, a "flannel board" measuring 3 in high by 4 in wide, is effective for demonstrating sequential development, grid diagrams, chemical structural changes, and degrees of conventional or radical operative procedures The board has a fiberboard base with a rayon viscose fiber covering It employs visual symbol cards prepared from sheets backed with rayon viscose fibers that adhere with little pressure and are easily removed Lettering or art work may be drawn or glued on the surface of the sheets Jigsaw diagrams were occasionally used to explain operative procedures A basic diagram was cut into its component parts and as the physician narrated he was able to remove organs and replace them to show the extent of surgical excision The diagrams were made of wood or pressed paper and were supported on an ordinary easel

A magnetic board was also used This is a drawing on light weight illustration board that, in turn, is affixed to a thin iron panel Supplementary material is attached to flat permanent magnets that will then adhere to the vertical surface of the chart (fig 5) Pointers were colored plastic knitting needles of varying sizes The physicians were carefully instructed in the technique of pointing to visual material Movements must be precise and accurate rather than broad and sweeping Sudden rapid motion of the pointer produced a disturbing stroboscopic effect on the television screen Blackboards were generally unsatisfactory, because the background did not erase cleanly Our experience was limited to composition boards, perhaps the use of a slate blackboard might obviate this difficulty

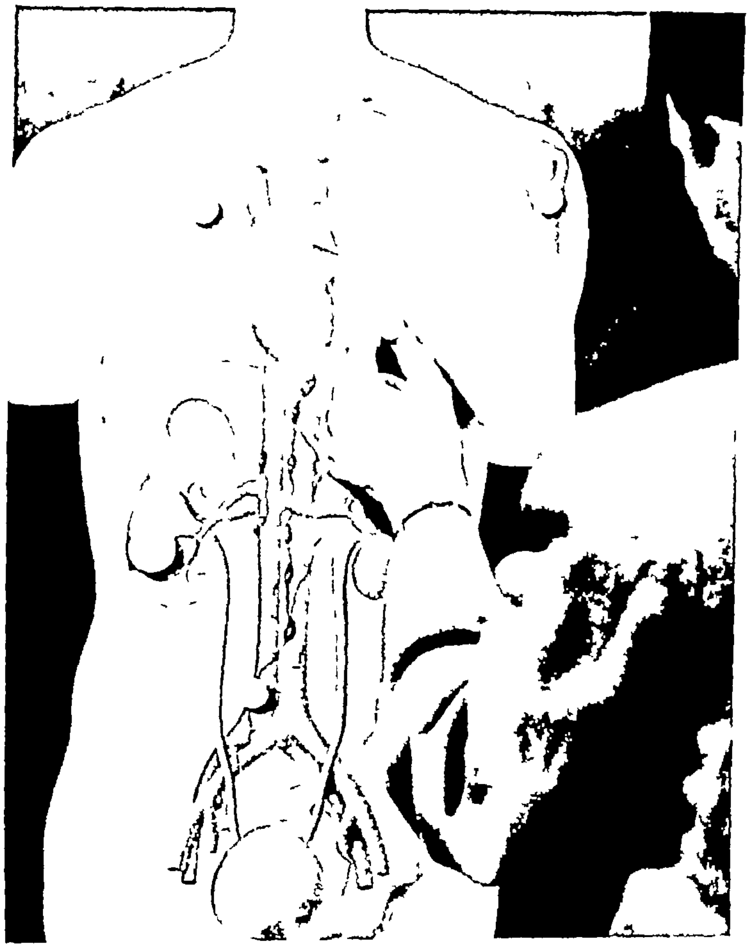

Fig 5 —Magnetic board with small disks representing metastases from a primary renal carcinoma

A revolving drum similar to the kind used for "credits" in black and white television was occasionally employed for presenting long lists that did not compose well within the three to four ratio of the television screen Tape recordings were essentially untried except for one program on psychiatry, in which they were used for background music in specially photographed dream sequences Future use may be considered in the presentation of recorded patient-physician interviews Colored chalk for use on overlays was selected primarily for contrast with the background colors

Both hospital patients and outpatients appeared in the medical presentations Due to the nature of the disease under discussion special precaution had to be taken to keep the patients from learning their diagnosis if they were not already aware that they had been treated for cancer The most effective types of patient presentations appeared to be those in which lesions were demonstrated or post-therapy results were illustrated Least effective were the simple interviews that noted a long-term survival and little else Dramatic effects were obtained with groups of patients whose histories were being discussed by a physician out of camera view and out of earshot of the patients For legal purposes, all participants were requested to sign release forms In order to demonstrate certain aspects of physical examination both male and female models were employed More specifically, the use of live models was confined to female breast, pelvic, abdominal, and head and neck examinations and to the localization of neurological levels

Kinescopes —The kinescope machine, newly devised by the C B S Research Laboratories, was one of the first machines used for a regular series of color television recordings The mechanism of operation consists of photographing the television picture on commercial color film Duplicate copies are reproduced from the picture and sound track originals to provide a composite print The kinescope recording apparatus accommodates 1,200 ft of film, enough to record about half an hour of program Thus it was necessary to reload in the process of recording a one hour program To prevent loss of continuity, that portion of the program that would be lost during reloading was kinescoped in advance of the air show for subsequent splicing into the final film presentation It is hoped that prints of the kinescopes will have wide distribution to county medical societies, medical schools, and other groups for showing at regular sessions In this way, those who were unable to see the live presentations can view the programs by simple movie projection

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The Attitude of the Physician —The persisting preoccupation with an almost exclusive physical, chemical and bacteriological orientation in under-graduate curricula is not in keeping with present-day knowledge It clings to the past and is influenced by the technological trends of the Western world The rediscovery of the patient as a person constitutes an important challenge to medicine today The prevalent attitude of physicians toward their patients has been heavily influenced by the attitudes which characterized their teachers in the medical schools and in their postgraduate training From them they learned, and they continue to learn, the organic etiology of disease, the importance of differential diagnosis and the chemical and surgical management of diseased organs, structures and systems They are also receiving an increasing amount of under-graduate instruction in psychiatry In these courses, they learn about the development of personality, the psychodynamics of the neuroses and the etiological factors and emotional significance of the psychosomatic affections What they are taught about the psychological origin of somatic symptoms and psychopathology is in such contrast to what they are taught in medicine and surgery, in bacteriology and in histology that many students regard illness either is functional in origin or as organically determined Subsequently, they are unable to utilize what they have learned in the department of psychiatry in their daily practice of medicine In their attitude toward their patients they perpetuate the body mind dichotomy, and their potentialities for rendering a quality of medical care commensurate with current knowledge about sickness and health are necessarily restricted —L H Bartemeier, M D , *The Bulletin, Georgetown University Medical Center*, May 1954

ACUTE SUPPURATIVE ARTHRITIS OF THE HIP IN PREMATURE INFANTS

Donald W Ross, M D , Los Angeles

The occurrence of acute suppurative arthritis of the hip in newborn infants is a pediatric emergency that is seen infrequently but presents a very serious and urgent problem when it occurs Too often an early diagnosis is not made, and irreparable damage to the hip joint has taken place before the seriousness of the illness is fully understood In the past two decades the advent of antibiotics has considerably reduced the incidence of septic lesions of the joints and osteomyelitis in children, however, as Blanche [1] recently showed, the frequency of osteomyelitis in infants under 1 year of age has not been reduced, despite the most modern and up-to-date facilities, drugs, and care A critical analysis of the failure of modern medicine to show favorable advances in the incidence of pyogenic arthritis and osteomyelitis in infants should be made The purpose of this paper is to illustrate the extreme necessity for early diagnosis in the management of acute suppurative disease of the hip in infants, more specifically, in the premature newborn

The baffling orthopedic problem that a young child with complete destruction of the head and neck of the femur presents to the orthopedic surgeon and the frequency with which this end-result occurs when an acute suppurative arthritis of the hip was the destructive agent initiated an investigation into the history of such patients in this hospital It was found that in the past four years five cases of acute suppurative arthritis of the hip had occurred that were unrecognized for varying lengths of time It may be significant that all of these cases occurred in premature infants The scope of this paper is limited to the early recognition and diagnosis of the process In the medical literature, many excellent reports describe the end-results of septic lesions of the hip in infants and cover the subject of their treatment Badgley [2] described the end-results in 113 cases, Harmon [3] has adequately discussed the surgical treatment of the residual deformity, and there are many other contributors to this subject. It is interesting to note that in almost all reports of a series of cases of septic lesions of the hip statistics are given as to the duration of local symptoms or signs before diagnosis is made Any delay whatsoever in dealing with a case of acute pyogenic arthritis of the hip may spell disaster, since it is well known that the cartilagenous constituents of the hip joint of an infant may be destroyed in a matter of hours by an acute suppurative process In Nicholson's [4] series the lapse of time between the appearance of local signs and recognition of the infection was five days to three months Blanche [1] states that in the cases studied the symptoms had persisted for at least a week This delay represented the time between the appearance of local signs while the child was in the care of his parents and the first examination by the physician In this paper, however, I am dealing with a different group of patients premature infants who have not yet left the hospital In the five cases described below from six days to 16 months elapsed after the onset of the initial local signs and symptoms before the diagnosis was established To my knowledge, no previous collection of cases of acute suppurative arthritis of the hip in premature infants has appeared in the literature

CLINICAL MATERIAL

All the cases of acute suppurative arthritis of the hip in newborn infants that had been reported in this hospital in the past 10 years were reviewed It was found that 18 cases had occurred and that 5 of these were unrecognized for a considerable period of time before the diagnosis was made Surprisingly, in every instance in which there was a delay in diagnosis the patient was a premature infant A likely portal of entry for a blood-borne infection to the hip was present in four instances (see table) The average age at the onset of symptoms was 12 days The first clinical signs recorded in four of the five cases were swelling of the buttock or thigh, or both, in the remaining case, a flexion contracture of the hip was the first sign noted A high temperature was present in only two of the five patients Among the presumptive diagnoses made was thrombophlebitis in one patient, abscess of the thigh in another, and cellulitis of the upper thigh in three In two patients spontaneous rupture of the infected joint apparently occurred, an abscess appeared in the thigh that was drained by an incision, but there was no recognition of the hip joint as the source of the abscess In the three cases in which cultures were taken the organism identified was Micrococcus pyogenes var aureus In all but one of these patients the diagnosis was eventually made by roentgenograms after destructive changes had taken place and a pathological dislocation had occurred Aspiration of pus from the hip joint confirmed the diagnosis in one patient

REPORT OF CASES

CASE 1 —A Negro girl was born in October, 1949, after normal, spontaneous labor without anesthetic The general condition was good physical examination revealed a normal premature infant 4 lb 5 oz (1,956 gm) in birth weight The patient was admitted to the premature nursery in an incubator and was given vitamin K, injected intramuscularly into the gluteal regions, a total of four times in the first two days Progress was somewhat slow, and the birth weight had not been regained on the 12th day On the 14th day there was a sudden elevation of temperature to 102 F, and 24 hours later the right buttock was noticed to be slightly swollen A diagnosis of low grade cellulitis

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Read before the New York Academy of Medicine Orthopaedic Section New York April 21 1954

Drs Carmelo C Vitale and Robert F Warren aided in the preparation of this material

[1] Blanche D W Osteomyelitis in Infants J Bone & Joint Surg 34 A 71 85 (Jan) 1952.

[2] Badgley C E Yglesias L Perham W S and Snyder C H Study of the End Results in 113 Cases of Septic Hips J Bone & Joint Surg 18 1047 1061 (Oct) 1936

[3] Harmon P H Surgical Treatment of the Residual Deformity from Suppurative Arthritis of the Hip Occurring in Young Children J Bone & Joint Surg 24 576-585 (July) 1942

[4] Nicholson J T Pyogenic Arthritis with Pathologic Dislocation of the Hip in Infants J A M A 141 826-831 (Nov 19) 1949

DIAGNOSIS

An early diagnosis could have been made in each of the cases described above if the hips of the infant had been carefully examined when the first local signs developed One must not overlook the fact that acute suppurative arthritis of the hip in a newborn infant can and does occur The differential diagnosis includes cellulitis superficial abscess and thrombophlebitis Trauma, congenital abnormalities, and acute poliomyelitis must also be included, however, the latter group of conditions can be distinguished readily, since the septic lesion of the hip is a sudden infectious process and, in almost all cases, the four cardinal signs of local inflammation are present When these findings occur near the hip of an infant the knowledge that an acute pyarthrosis can occur directs attention to the joint itself, and an erroneous diagnosis of an infection of the superficial tissue can be avoided

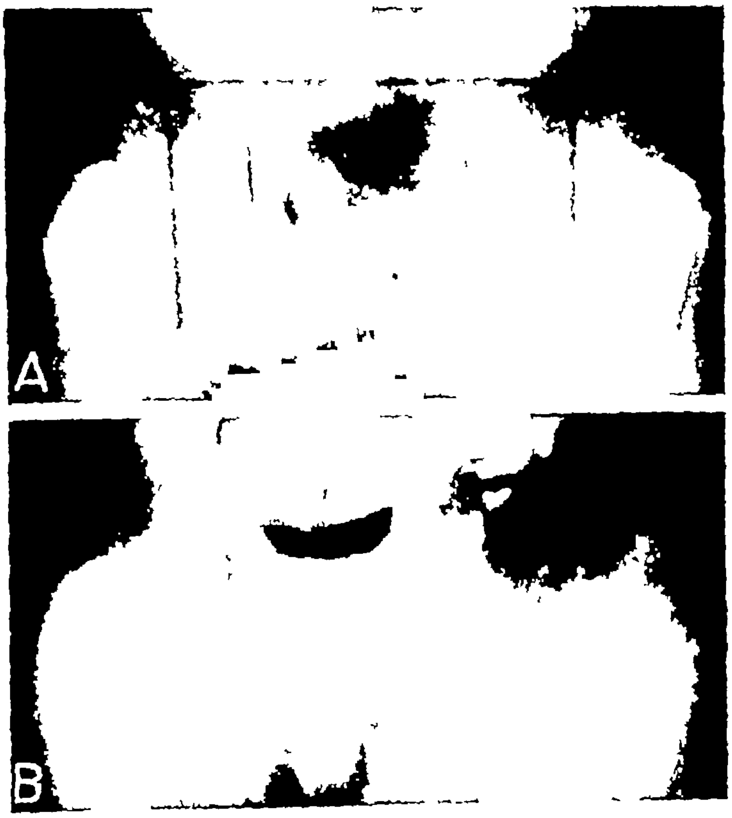

Fig 4 —*A* roentgenogram of the patient in case 4 initially thought to be normal Close scrutiny reveals pathological dislocation of the left hip from an unrecognized acute suppurative arthritis *B* second roentgenogram of patient taken three weeks later, revealing advanced destructive changes in the femur and pelvis

Once the hip joint itself has fallen under suspicion, the additional diagnostic physical findings that should suggest intra-articular disease are (1) flexion contracture, (2) restriction of abduction, and (3) deepening of the transverse gluteal crease or presence of an extra skin crease A newborn child lies either face down or on his back with legs flexed and abducted in a "frog" position By pulling gently on an infant's ankle in an effort slowly and carefully to extend the thigh, a flexion contracture of the hip can be detected It also may be necessary, in examining for a flexion contracture, to flex the opposite thigh on the abdomen while the range of extension is tested in the suspected joint By comparing the amount of abduction available with the hip flexed to 90 degrees with that possible in the opposite hip, a restriction of this motion may be shown to be present In most newborn infants the thighs may be abducted in flexion to the horizontal Restricted abduction suggests a pathological dislocation, and roentgenograms may confirm such a suspicion Deepening of the transverse gluteal crease and the presence of an extra skin crease should arouse suspicion but are of doubtful value, since such findings are present in many infants with normal hips In the presence of these findings, together with those of inflammation, the preliminary diagnosis of an acute suppurative arthritis of the hip should be made and the joint promptly aspirated with a large-bore needle Treatment depends on the result of the aspiration and may include open drainage of the joint and fixation in an abduction spica cast Early roentgenograms cannot be depended on for an early diagnosis, and, indeed, it is the aim of the treatment that no abnormal roentgenologic findings appear Needless to say, aspiration and roentgen examination are tests that should be used to confirm a suspected suppurative arthritis after the clinical diagnosis has been made

From a critical evaluation of the management of the cases described above, the following postulates are proposed 1 An infant with any infection, however insignificant, should be considered potentially to have a septic lesion of the hip 2 Enlargement or swelling of the leg thigh, buttock, or groin in an infant must always be considered to be an early sign of an acute suppurative process in the hip 3 All infants with infection should be tested daily for limitation of flexion and abduction of the hips The maneuvers are simple and are easily and quickly performed while the patient lies on his back

COMMENT

The fact that all five of these unrecognized cases of acute suppurative arthritis occurred in premature infants has aroused much interest, and the general management of these patients has been surveyed in an effort to discover one common contributing factor In all but one of the cases a known primary infection was under treatment The susceptibility of the premature infant to infectious processes needs no emphasis here, nor can a claim be made that therapy of infections in premature children

Fig 5 —Normal roentgenogram of the patient in case 5 made seven months and three weeks after treatment by open drainage of acute suppurative arthritis of the left hip which was done seven days after onset of signs of inflammation

is grossly different from that used in the normal newborn The conclusion remains that during the concentrated efforts directed toward feeding problems, hematological problems, and the other burdens of the premature infant, there is no emphasis on the diagnosis of such complications as septic lesion of the hip Finally, the selectivity for the hip joint that pyarthrosis seems to show in this series needs consideration The buttocks, thighs, and legs of the patients were the commonest sites of therapeutic or diagnostic use of the hypodermic needle, as in the repeated vitamin K injections However, the scalp veins were used for transfusions in two instances in this series To my knowledge there is no published record proving that the pathogenesis of an acute pyogenic process in the hip joint of an infant began with the unintended introduction of a nonsterile instrument into the adjacent soft tissue or through the capsule and synovia I do not believe that the occurrence of a suppurative lesion of the hip in an infant is the result of direct extension to the joint from a nearby primary infection There is little question that the simultaneous presence of a pyogenic distant infection in four out of five cases was not coincidental

SUMMARY AND CONCLUSIONS

In five cases of acute suppurative arthritis of the hip in premature infants treatment was delayed because of failure to make the diagnosis Serious, permanent injury resulted, except in one patient who received comparatively prompt treatment and in whom a good result is expected My study of these cases leads me to believe that the infection of the hip resulted from a hematogenous spread from a distant focus rather than from intragluteal injections or venepuncture in the region of the hip Acute suppurative arthritis of the hip in a newborn child is difficult to diagnose in the early stages and may be entirely overlooked This is especially true in a premature infant, since there may be no detectable systemic reaction A serious error can be made if a disease process within the hip is not included in the differential diagnosis of local signs of inflammation in the groin, buttock, or thigh The diagnosis should be established by the detection of early physical signs and immediate aspiration of the hip joint When treatment is delayed until changes are visible in the roentgenogram, the damage to the joint is usually extensive and crippling

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TREATMENT OF SYMPTOMATIC GIANT AIR CYSTS OF THE LUNGS

Hugh Barber, M D

and

Frank Lamberta, M D , New York

The bulla as a common cause for pneumothorax has attracted increasing attention Its growth to a giant air cyst with crippling pressure effects and respiratory invalidism is less well known A return of useful respiratory capacity in the afflicted patient has been indicated already in various reports by removal of the air cysts[1], however, many physicians emphasize an underlying pulmonary emphysema as insurmountable in treatment and allow the disease process to run its inexorable course The potential for rehabilitation in many cases of advanced giant air cystic disease merits more notice, while the importance of associated emphysema should receive further investigation This paper is prompted by a personal experience, between 1951 and 1953, with 11 respiratory invalids who had giant air cystic disease and whose lungs were restored to useful function by the use of a limited excision

Air cysts of the lungs are classified with respect to the point of origin from the tracheobronchial tree The origin of this disorder in the subpleural end-bronchiole or the alveolar duct is pointed out by authorities and observed in this experience The peripheral origin differentiates cystic bronchiectasis, congenital cystic disease, and cystic hypogenesis of the lungs, which arise from more major bronchi and have bronchial structural characteristics Other cystic lesions, especially air cysts with suppurative pneumonia in children, present perplexing problems, however, management of the lesions rarely appears to be handicapped by insurmountable pulmonary emphysema

CLINICAL FEATURES

Clinical reports and the 11 cases indicate a preponderant incidence of the disease in men throughout adult life, from 21 to 69 years The known duration of symptoms before the invalid state ranged from two months to nine years A diagnosis was made of pulmonary emphysema with cystic changes at onset of disability, but definitive treatment was deferred because of emphysema No asthma, allergy, or sensitivity was found in these patients, but occasionally these are reported Interesting also was the failure to obtain convincing data on prior suppurative pneumonia or other lung disease necessitating hospital care Smoking habits and known inhalational hazards could not be correlated

Signs and Symptoms —The group of 11 patients were in good health and had no complaints of respiratory disorder prior to the onset of symptoms attributable to air cyst After their onset, the symptoms were indistinguishable from those expected in chronic progressive pulmonary emphysema These included susceptibility to

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Assistant Thoracic Surgeon Triboro Hospital and French Hospital (Dr Barber) and Visiting Physician Triboro Hospital and Associate Physician Mary Immaculate Hospital (Dr Lamberta)

[1] Warring F C Jr and Lindskog G E Surgical Management of Giant Air Cysts of Lungs Physiologic Improvement After Resection [illegible] Rev Tuberc 63:579 586 1951 Dugan D J and Samson P C Surgical Treatment of Giant Emphysematous Blebs and Pulmonary [illegible] Cysts J Thoracic Surg 20 729-[illegible] 1950 Allbritten F F [illegible] Templeton J Y III Treatment of Giant Cysts of Lung [illegible] 760 1950

[2] Moersch, H J, and Clagett, O T Pulmonary [illegible] Physiology [illegible] Surg 16 179 194 1947 Cooke F N and Blades B [illegible] 1949

frequent colds, irritative cough, hemoptysis, expiratory wheezing, dyspnea, weakness, precordial palpitation, anxiety reaction, and cyanosis rather late in the course of the disease Degenerative arthritis was not present in the dorsal spine and rib joints Depressed diaphragms were observed as expected because of the rise in intrathoracic pressure Red blood cell and hemoglobin concentrations were not above normal limits, but circulating cell mass and volume studies were not done Electrocardiograms showed strain of the right side of the heart In three cases a large, tender liver and pitting edema of the ankle indicated insufficiency of the right side of the heart Other symptoms arose not infrequently from interval complications These included (1) rupture of the cyst with pneumothorax (6 out of 11 cases) precipitating surgical attention, (2) hemorrhage, and (3) infection (1 case) Acute chest pain, fever, hemoptysis, cough, and increased shortness of breath aggravated any preexisting disorders of the cardiorespiratory function and pointed to one of these complications

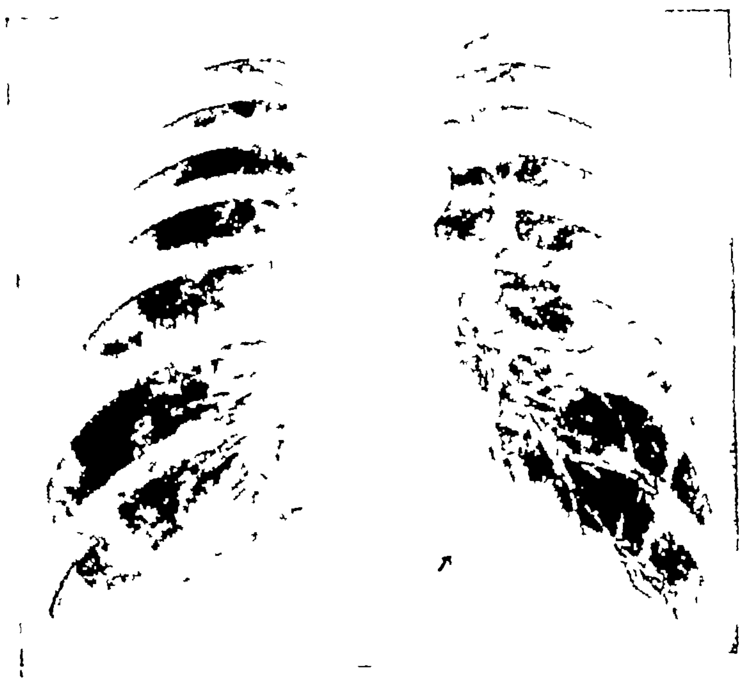

Fig 1 —Bronchography fails to opacify the giant air cyst or indicate the point of origin from bronchial tree The major bronchi visualized appear normal

A useful point in clinical evaluation has been an estimate of size of an air cyst before the symptoms occur with exercise On a conventional roentgenogram, an uncomplicated air cyst has been found to exceed 30% of the total lung area before onset with exertion of expiratory wheeze, bronchospasm, and tachypnea Patients with uncomplicated cysts approaching 20% are followed for the first evidence of respiratory symptoms If chronic pulmonary emphysema or other diffuse disease caused these symptoms, they should reasonably be manifest at this stage Later, with increased size and the development of symptoms that suggest impaired ventilation, a distinct clinical syndrome is manifest The historical relation of symptoms to the size of the cyst may have real prognostic value

Roentgenography —Symptomatic giant air cysts appear on the conventional chest roentgenogram Absence of the fine structural markings in the cystic area provides contrast with the compressed neighboring lung Retained secretions and chronic localized pneumonia in the adjacent lung tissue may add to the radiodensity in this area The major consideration lies in determination of the isolated giant cyst from the scattered focal lesions common to various lung diseases Conventional techniques usually serve this purpose adequately Specialized roentgen studies have much academic interest Angiocardiography visualizes displaced major pulmonary vessels and makes opaque the fine vascular structures After removal of the air cyst, a return to a normal pattern may be demonstrated according to the surgery performed Tomography (body section roentgenography) is used to delineate cyst markings and often to clarify the extent of disease Differentiation of pneumothorax from giant air cyst may be possible by its use when otherwise in doubt Bronchography does not define these cysts, but does have indirect value Under the existing physiological conditions, filling of the end-bronchiole and the alveolar duct is usually poor The major bronchi visualized appear normal (fig 1) The importance of bronchography lies in excluding cystic bronchiectasis, congenital cystic disease, and cystic hypogenesis, which are associated with major bronchial origin and may be demonstrated by this technique

CAUSE OF GIANT AIR CYSTS

The importance of concurrent pulmonary emphysema etiologically remains undetermined However, these conditions for giant cyst formation and growth seem necessary (1) chronic inflammatory or fibrous tissue reaction in or around a terminal bronchiole (less than 0 5 mm) with narrowing of its lumen (check valve mechanism)[3], (2) fragmentation or disruption of elastic tissue component in the adjoining peripheral alveolar walls and visceral pleura[4] (loss of retractile force), and

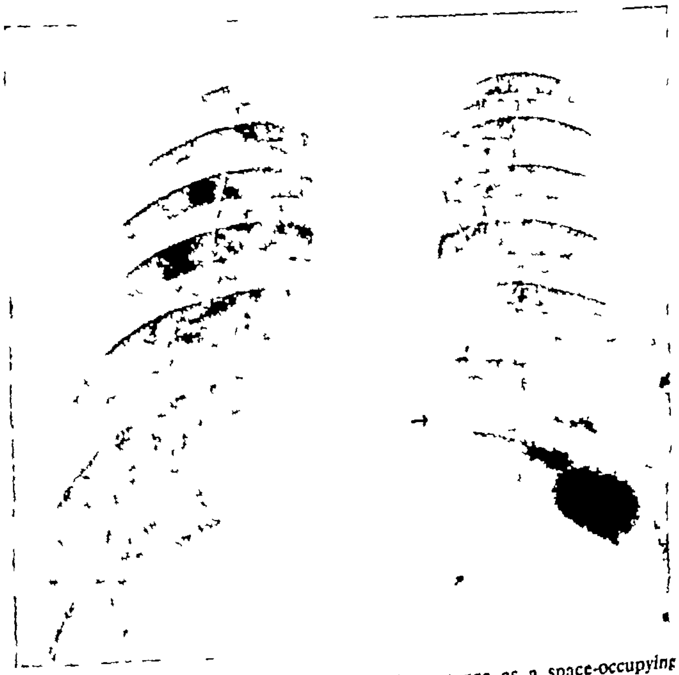

Fig 2 —Giant air cyst assumes major importance as a space-occupying lesion with pressure effects

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[3] Spain D M and Kaufman, G The Basic Lesion in Chronic Pulmonary Emphysema Am Rev Tuberc 68 24-30 1953

[4] Miller W S The Lung, Springfield Ill , Charles C Thomas Publisher, 1937

(3) interference with the normal collateral ventilation or air drift in the area affected by chronic inflammatory or fibrous reaction (airtight cyst wall)

Observations at the operating table and study of surgical specimens provide supporting data Terminal bronchioles providing the valvular mechanism may be seen in the floor of the cysts Histologically there is seen a chronic inflammatory lesion and no cartilage is found in or at its communicating orifice The cyst wall is fibrous with scattered fragments of elastic tissue Adjacent lung tissue may show extensive organizing pneumonia Anthracotic pigment is often interspersed in broad areas of hyaline scar, as is blood pigment from old hemorrhage Within the cyst, epithelium is absent or indifferent

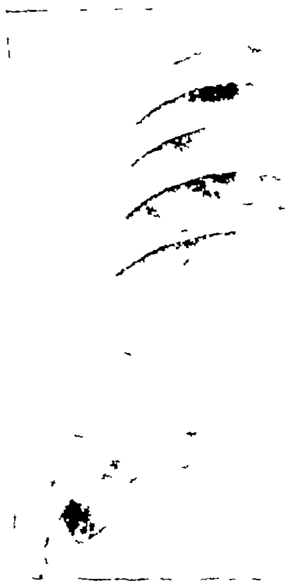

Fig. 3—Thoracotomy shows peripheral origin of the giant air cyst in figure 2. Restoration of the residual functioning lung may be obtained by simple excision of the lesion

CLINICAL MANAGEMENT

Initial consideration in the symptomatic patient need be given to such supportive measures as avoiding inhalation of irritants including tobacco smoke, protecting against exposure to colds and infection, and receiving general rest. Immediate treatment with forced oxygen therapy or sedation has real dangers Too prompt correction of lack of oxygen or direct effect of a narcotic on the chemoreceptors raises the hazard of carbon dioxide intoxication A gradual adaptive regimen of these agents offers increased safety and no less benefit

Asymptomatic or uncomplicated air cysts do not demand treatment until a complication occurs The decision for surgical excision rests on symptoms attributable to a giant air cyst or a complication (fig 2) The extent of pulmonary emphysema or other chronic pulmonary diseases deserves careful evaluation but rarely constitutes absolute contraindication to surgery Improved respiratory function can be expected from removal of a major space lesion of an air cyst type The question of an operation in a patient without respiratory reserve has been a major concern to some surgeons With strong opinion to the contrary, functional studies offer little help in ascertaining whether an operation can be performed Such studies provide no reliable base line or standard from which to deny any patient the possible benefits of excision, however dyspneic he may be because of this form of giant air cyst of the lung Potential function in a trapped lung, which is recoverable by surgery is not measurable beforehand in the laboratory This is due to the dead space of the giant air cyst, associated bronchospasm (activated Hering-Breuer reflex?), compression, stagnant secretions, and chronic infection in adjacent lung tissue A satisfactory preexisting history of respiratory reserve and the natural history of this disorder demand major consideration for this vital decision

Bronchoscopy is performed routinely to establish a clear, unobstructed airway and for aspiration of retained secretions Also, endobronchial tumor and foreign bodies should be excluded Excision is recommended for the symptomatic giant air cyst of the lung whether bilateral or unilateral (fig 3) Preservation of all available useful lung tissue should be a rule (fig 4) Simple cystectomy is the procedure of choice Attached segments of airless lung, even if injured by chronic infection, may be restored to function to the patient's advantage

In this group of 11 patients, including 3 with bilateral air cysts, involving 12 operations, there was no mortality during the operations or in the hospital Ten of the procedures were local excision and two lobectomy for associated fibroanthracosis Postoperatively, symptoms of respiratory insufficiency subsided and respiratory function improved continuously over a period of months Restoration of health and useful breathing reserve has

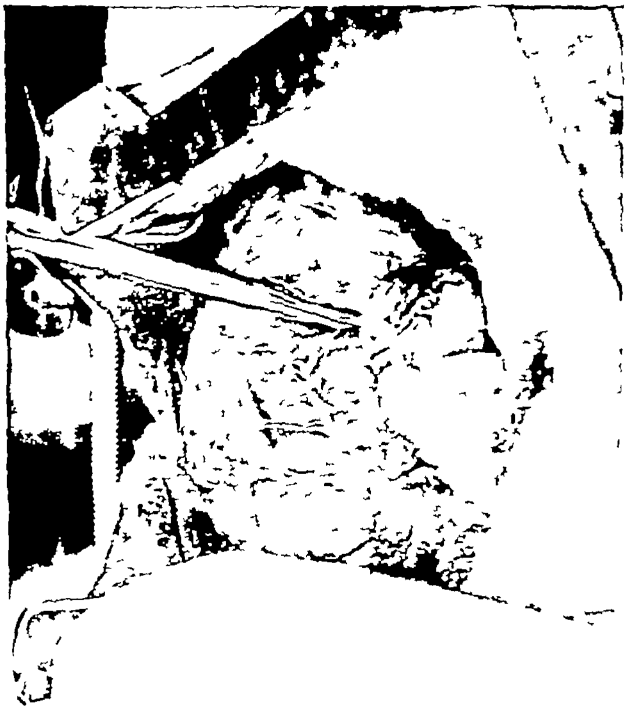

Fig. 4—At surgery giant cysts may occupy most of the chest, while the airless lung is displaced or appears as an insignificant appendage adjoining the cyst. Conservative and restorative surgery is desirable

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5 Churchill E D The Segmental and Lobular Physiology and Pathology of the Lung. J Thoracic Surg. 18 279 293 1949

been gratifying Follow-up to a maximum of two years is too short for future prognosis, but the improvement continues to be maintained Re-formation of giant cysts has not been observed nor recurrence of symptoms associated with emphysema

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CLINICAL NOTES

DIABETES INSIPIDUS, DIABETES MELLITUS, AND INSULIN RESISTANCE WITH HISTIOCYTOSIS

Leonard G Rowntree, M D
and
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The coexistence of diabetes insipidus and diabetes mellitus is rare In 1931, Dr Frank Allen and one of us (L G R) presented 2 typical cases and made reference to 10 other cases reported in the literature In the intervening years 18 additional cases have been described, and, with the case here presented, the total number is now more than 30 The history of the two diseases will not be repeated here, emphasis will rather be laid on the modern concepts of the two diseases, especially as to pathogenesis An attempt will be made to interpret the nature and course of the illness in terms of pathology histology, and endocrinology and in the light of advancing science In his "Novum Organum" Francis Bacon stated that all truth must be reinterpreted from time to time in the light of newer knowledge Thus, in 1897 the great German pathologist Senator discussed the disease in terms of local changes in the kidney, referring to the piqûre experiments of Claude Bernard and the possible role of certain lesions of the nervous system in the causation of glycosuria and polyuria This was prior to the recognition of histiocytosis and reticuloendotheliosis, of hormones and their controlled balance in health and imbalance in disease, and of the role of individual cells in endocrine organs as the source of particular hormones Since Senator's day endocrinology has emerged, and diabetes insipidus and diabetes mellitus now are considered endocrine diseases However, lesions of the hypophysis and of the third ventricle are still considered important in the causation of these diseases, as are lesions in the hypothalamic regions The constantly increasing number of reported cases of coexistence of these two diseases makes mere chance appear a most unlikely explanation of their relationship The question arises whether it is possible to find an adequate pathological basis for both syndromes in the following case and other cases

REPORT OF A CASE

A woman, 60 years of age, was first seen on Dec 16, 1946, with the complaints of polydipsia, polyuria, and poor appetite Her family history revealed no tendencies to diseases of any significance During childhood she had had measles, mumps, whooping cough, and a tonsillectomy In 1918 she had been hospitalized for a "nervous breakdown" In 1943 she had been informed that she had an "exhausted heart" The patient's husband was living and had thromboangiitis obliterans, her married life was happy and contented, she had three sons, the youngest now 24 years of age The onset of the present illness had been sudden and dramatic In 1946 the patient and her husband had signed a contract and realized immediately thereafter that they had been swindled She had suffered great mental anguish, within 10 minutes her mouth had become dry, and she had then experienced inordinate thirst and drunk huge quantities of water She had suffered continuously since that time from polydipsia and polyuria, which were temporarily relieved by pituitary preparations She was excreting 8 to 10 liters of urine daily Physical examination showed that the height was 5 ft 3½ in (160 cm), weight, 147 lb (66 7 kg), there was a geographic tongue and lesions of cheilosis at the corners of the mouth, the patient wore complete dentures, the pulse rate was 72 per minute, and blood pressure was 140/80 mm Hg Other physical findings were normal

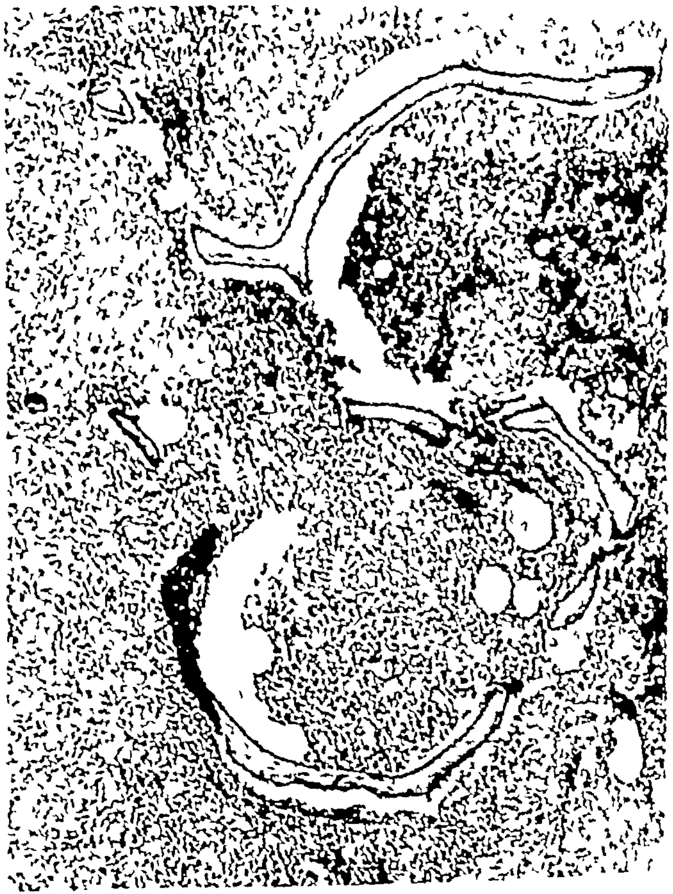


Fig 1 —Photomicrograph of a representative section of the vertebral marrow Almost the entire marrow is replaced by granulomatous tissue The darker staining areas are islands of hematopoietic elements that still remain The bone trabeculae are thin and atrophic (X 27)

When first seen by one of us (L G R), one of her major problems was fear, but this was soon dispelled to a large extent During several years' therapy, pituitary medicaments were given in all forms posterior pituitary injection, vasopressin injection (Pitressin), vasopressin tannate injection, and posterior pituitary preparations administered by nasal spray and insufflation The principal therapy throughout was with vasopressin injection In 1948, infection and pain in the gallbladder area developed Roentgen examination revealed a single stone In February 1949, glycosuria and elevation of the fasting blood sugar was first detected Since the patient objected to diet, she was given insulin, 5 to 10 units daily, the dose gradually increasing to 35 units For two years there was a typical course of diabetes insipidus and diabetes mellitus The patient lost 7 lb (3 2 kg) in weight and suffered occasional attacks of dizziness and colds but remained fairly healthy, taking three injections of vasopressin injection and 35 units of insulin daily In 1951, infections began to develop

The patient was first admitted to St Francis Hospital in October, 1951, for severe indigestion and pain in the gallbladder The disease ran a febrile course with mild leukocytosis Fever and pain gradually subsided but the insulin requirement [illegible] to 60 units daily The second admission was in Feb [illegible] for acute appendicitis with marked leukocytosis [illegible] was performed by Dr John W Snyder Insulin requirement [illegible] creased to 100 units daily blood sugar was markedly [illegible] The patient lost about 20 lb (9 1 kg) in weight She [illegible] after the insulin intake was increased to 150 units [illegible] insulin protamine zinc insulin and isophane insulin (N P H) [illegible]

Fig. 2—Higher magnification of a part of fig 1 showing replacement by histiocytes, between which are calcium deposits and collections of lymphocytes plasma cells and polymorphonuclear leukocytes (× 307)

were tried The third hospital admission was for an abscess that had developed on the thigh The temperature was 102 F, leukocyte count, 17 500 per cubic millimeter, erythrocyte count, 5 670 000 per cubic millimeter, and hemoglobin level, 15 gm per 100 cc The blood sugar level was over 400 mg per 100 cc, and small amounts of sugar appeared in the urine The abscess was opened and drained Recovery was satisfactory, but the insulin intake was markedly increased Regular insulin, 150 units and globin zinc insulin 100 units were given each morning, and an additional 200 units of globin zinc insulin were given before dinner Only after the insulin intake was raised to 600 units daily was the fasting blood sugar brought to the level of 200 mg per 100 cc The patient was admitted to the Joslin Clinic in May 1952 There she was very carefully studied and given extensive physical roentgen, and blood chemistry examinations and various therapeutic regimens, including intravenous administration of insulin in large doses She was also given cortisone and corticotropin (ACTH) alone and in combination without benefit. Her insulin resistance was studied by Dr Stadie of Philadelphia The blood serum was definitely insulin antagonistic, but not markedly so Allergy studies were essentially normal. By June 25 the patient was taking 1 700 units of insulin a day On her return to Miami 13 weeks after admission to the Joslin Clinic, the insulin requirement increased to 3,300 units a day She was readmitted to St Francis Hospital on Aug 13 for a large abscess on the thigh, which was incised and drained Subsequent to this the patient went into coma without ketosis, and died.

The pathogenesis of the diabetes insipidus was thought to be a destructive lesion of the posterior lobe of the pituitary Emotional trauma was thought to be a factor in initiating the diabetes

[illegible] the lower lo[illegible] 270 gm [illegible] both [illegible] arteries exhibited [illegible] atherosclero[illegible] cut surface w[illegible] The spleen weighed [illegible] gm [illegible] noted in the pulp [illegible] were [illegible] the left 130 gm [illegible] bladder contained [illegible] congested and in some [illegible]

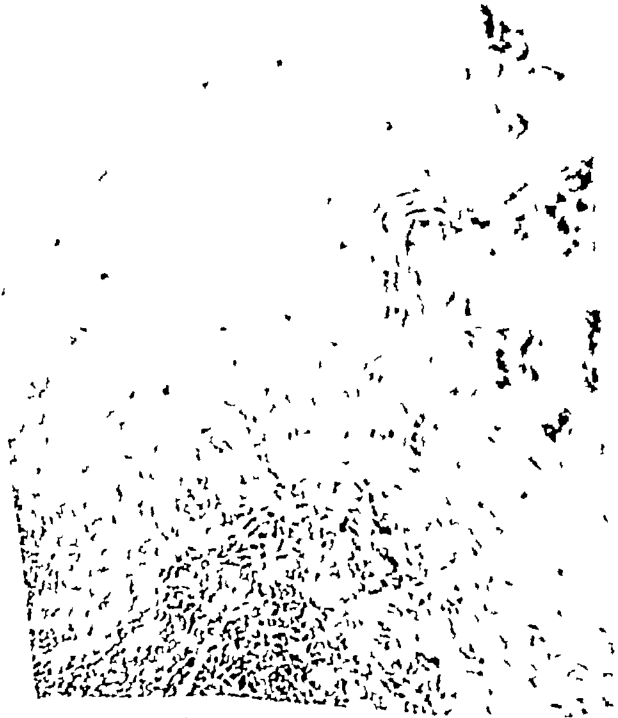


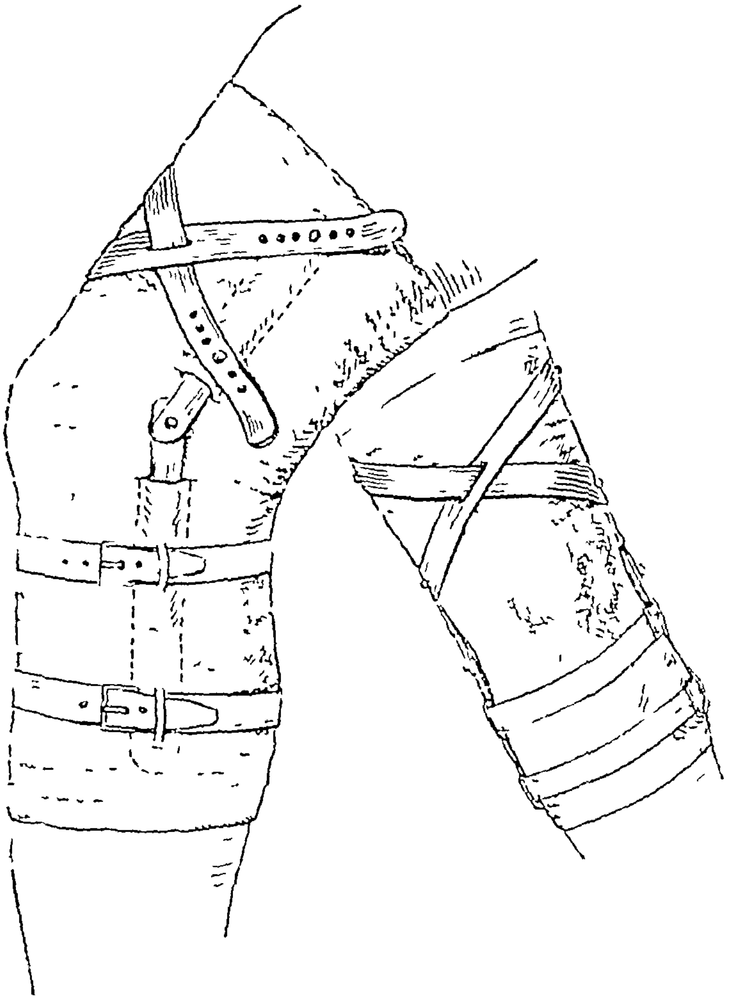
Fig 3 —Photomicrograph of a section of the p[illegible] gland [illegible] distorted architecture and scattering of the posterior l[illegible] in the [illegible] portion of field (× 27)

metrial polyp The brain weighed 1 100 gm the [illegible] at the base exhibited marked atherosclerosis [illegible] several petechial hemorrhages in the left lobe of [illegible] The anterior [illegible] pituitary appeared [illegible] normal [illegible] lobe was [illegible] the small, [illegible] diam[illegible] of the [illegible] lump[illegible] sectione[illegible]

SIMPLE KNEE CAGE BRACE

Philip Lewin, M D , Chicago

A knee cage brace (see figure) is helpful in a variety of knee disorders such as sprains, strains, arthritis, and synovitis The construction of the brace requires that measurements be taken above, below, and over the patella A long, elastic knee support is woven according to these measurements so that the fit is snug but not constrictive Lining the popliteal area of the support with chamois reduces irritation The support should include pocket slips on each side, which receive rivet-jointed metal bars, and loops for positioning the straps below the knee The brace is held from slipping without pressing on the patella by these straps and the crossed straps above the knee, one of which is threaded through a slit in the other The upper straps pass across the front of the leg and are secured at the sides with adjustable fasteners to the upper segments of the metal bars



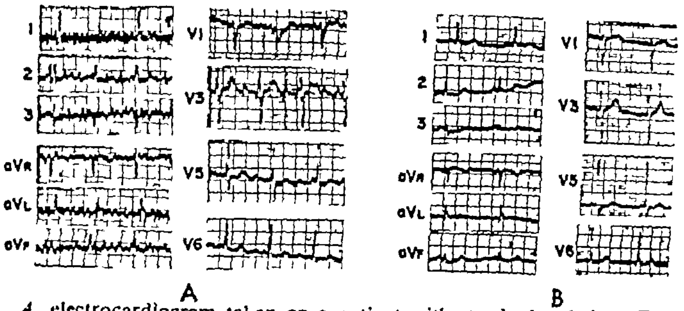
Knee cage brace side and front views

55 E Washington St

ELIMINATION OF ELECTROCARDIOGRAPHIC DISTORTION DUE TO SOMATIC TREMOR

Bernard H Pastor, M D , Philadelphia

One of the common artefacts that make electrocardiographic interpretation difficult is due to tremor of the somatic muscles This produces an irregular vibration of the baseline that may partially or completely obscure the smaller waves of the tracing Clinical electrocardiography is feasible only because no large muscle masses, except the heart muscle, are in motion in the normal subject at rest Tremor is a troublesome factor in many nervous patients but is intensified in thyrotoxicosis and is particularly intense in patients with a neurological disturbance such as paralysis agitans (parkinsonism) It has previously been recognized that the influence of tremor can be minimized in routine tracings by the application of the standard limb electrodes to the forearm and inner aspect of the lower leg rather than to the wrist and the ankle This reduces but does not eliminate the effect of tremor in most cases



A electrocardiogram taken on a patient with standard technique There is marked distortion due to somatic tremor *B* electrocardiogram taken on the same patient with Welch electrodes placed on shoulders and thighs Note absence of distortion

A simple technique for the elimination of the distorting effect of tremor on the electrocardiographic record involves the use of a set of self-retaining electrodes such as the one described by Welsh [1] The electrodes are applied to the shoulders and thighs of the patient instead of on the extremities This is technically satisfactory since an electrode placed anywhere on an extremity records as though it were at the junction of the extremity with the trunk, as is evident from the fact that the pattern of the limb leads is uninfluenced by the position of the extremities with respect to the trunk

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From the Medical Service Veterans Administration Hospital

[1] Welsh W Self Retaining Electrocardiographic Electrode J A M A **147** 1042-1044 (Nov 10) 1951

Paul Ehrlich's Library—As far as we know, Ehrlich's headquarters, the Institute of Experimental Therapy at Frankfurt a M , had no librarian, and this was just as well Ehrlich's study served as his library and he was his own librarian, books and journals covered tables, chairs and sofa, and were piled on top of each other practically from floor to ceiling In the earlier days his factotum Kadereit had to clear the books off the sofa when important guests were expected, but later on it was found that time could be saved by leaving the books where they were No systematic search of this hodge podge of literature was possible, only Ehrlich himself was able to find anything and his ire fell upon anybody who tried to bring order into what was to everybody but him utter chaos Ehrlich always found it difficult to part with borrowed books, frequently, the reason was that he had adorned the copy with notes, sketches, and drawings to such an extent that he was embarrassed to return it On the other hand, he usually spent more than one half of his salary on books—and this probably did not include his extracurricular reading Like many men forever engrossed in difficult intellectual tasks, he was extremely fond of relaxing with a detective story The scientific methods of Sherlock Holmes appealed particularly to him, and we are told that Sir Arthur used to send him complimentary copies inscribed "to my great colleague "—Karl A Baer, Paul Ehrlich (1854-1915) and the Printed Word, *Bulletin of the Medical Library Association* July, 1954

APPROVED INTERNSHIPS AND RESIDENCIES IN THE UNITED STATES

ANNUAL REPORT OF INTERNSHIPS AND RESIDENCIES BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

Edward H Leveroos, M D., Arthur N Springall, M D, and Carl T Heinze

Annual Report

The text material and tables included in this, the Council's 28th Annual Report, relate to internships and residencies currently conducted in Council-approved hospitals in the United States and its possessions Seven tables are presented that give statistical information on internships a 10 year summary of approved hospitals, analyses of the number of internships by type of service, by type of hospital control, by bed capacity and medical school affiliation, by census regions, a table on intern stipends, and a list of hospitals with highest autopsy rates The second section of the report presents data on residencies, including tables on the number of residencies by type of hospital control, by bed capacity, and by medical specialties

The material presented in the report is based on information furnished by approved hospitals with data on the number of interns and residents serving and the number of vacancies, reflecting the situation as of Jan 1, 1954 These statistics are not the same, therefore, as those shown in the lists of approved services, since the latter indicate appointments for the year July 1, 1954, to June 30, 1955 As is customary, lists of approved intern services and approved residency programs follow the report These lists, together with information on all approved examining boards in the medical specialties, are published in reprint form as the Directory of Approved Internships and Residencies [1] Copies of this directory may be obtained from the Council on Medical Education and Hospitals on request It includes a geographical listing of approved internships, one by type of service, a list of approved residencies by medical specialty, and a list of hospitals recapitulating the specialties in which approved training is offered

For many years, the Council has collaborated with a number of organizations in approving residency programs They include the following

Advisory Board for Medical Specialties
American Board of Anesthesiology
American Board of Dermatology and Syphilology
American Board of Internal Medicine
  Subspecialty Board on Allergy
  Subspecialty Board on Cardio-Vascular Diseases
  Subspecialty Board on Gastroenterology
  Subspecialty Board on Pulmonary Diseases
American Board of Neurological Surgery
American Board of Obstetrics-Gynecology
American Board of Orthopedic Surgery
American Board of Otolaryngology
American Board of Pathology
American Board of Pediatrics
American Board of Physical Medicine and Rehabilitation
American Board of Plastic Surgery
American Board of Preventive Medicine
American Board of Proctology
American Board of Psychiatry and Neurology
American Board of Radiology
American Board of Surgery
American Board of Urology
Board of Thoracic Surgery
American College of Physicians
American College of Surgeons

To these organizations, the Council wishes to express its appreciation for their invaluable assistance and support The Council also wishes to make grateful acknowledgment to the medical staffs and administrators of those hospitals in which Council approved programs are being conducted, particularly for making available information on which this report is based

The Annual Report is published for the information of the medical profession, educators, hospital administrators, and others The report and the directory are prepared in the hope that the information thus available may contribute toward a recurring appraisal of this important phase of medical education, training at the graduate (internship and residency) level, and, more directly, may prove of value to younger physicians seeking house staff appointments in the furtherance of their professional careers

Internships

A 10 year summary of the number of hospitals approved for intern education and the number of internships available is presented in table 1 The number of hospitals rose from 785 to 844 in this 10 year period, an increase of 7%, or less than 1% per year The number of internships, on the other hand, increased from 8,429 positions in 1945 to 10,624 during the same period, an increase of 26% This fact is considered significant in appraising the present situation relative to the intern shortage The problem is primarily one of increased demand for interns in hospitals that have been approved for intern training for a number of years rather than one due to a rapidly expanding list of approved hospitals On the average, five or six hospitals throughout the country have been added to the approved list annually, the number of internships offered, however, has increased on the average by about 220 per annum.

The number of internships dropped for the second successive year from 11,006 in 1953 to 10,624 this year This trend may indicate a more critical evaluation of the need for interns in approved hospitals, since the decrease in the number of hospitals could be expected to result in a lowering of the number of internships of le [illegible] than 150 positions, rather than a decrease of 382 as actually occurred The relatively wide fluctuation in the number of internships offered over the p [illegible] years [illegible] gro [illegible] phasizes the difficulty of arriving at [illegible] attempting to assess the intern [illegible] hospitals It is evident that the vacancies will vary from year to year, depending largely on the increase or decrease in demand by hospitals conducting internships A careful self-appraisal by hospitals of their individual needs could result in a sharp decline in, if not the elimination of, the over-all shortage The statistical data in table 1, as well as those on internships that follow, do not include intern positions in hospitals outside the United States, there are eight such hospitals, including two in Hawaii, one in the Canal Zone, and five in Puerto Rico They offer a total of 82 internships

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[1] Information on the examining boards [illegible] be published in The Journal, Oct. 2, 1954

TABLE 1 —*Approved Hospitals and Internships, 1945-1954*

Year of Publication	No of Hospitals	No of Internships *
1945	785	8,429
1946	708	8,684
1947	761	8,539
1948	807	9,118
1949	807	9,124
1950	799	9,308
1951	828	10,044
1952	805	11,407
1953	856	11 000
1954	844	10,542

* U S Army and U S Navy hospitals and those outside the United States not included in 1945 to 1947 figures

INTERNSHIPS BY TYPE OF SERVICE

The number of approved internships by type of service, *including the number and percentage of these filled* as of January, 1954 is shown in table 2 As in former years the large majority, 9,371, or 89%, were of the rotating type These internships include assignment to the clinical divisions of internal medicine, obstetrics and gynecology, pediatrics, and general surgery Of the 1,035 approved internship programs, 831 were of this type

The next largest number, 180 programs in all, or 10%, were straight services, with a total of 1,024 internships offered, including those in internal medicine, pediatrics, surgery, and pathology By action of the House of Delegates in December, 1952, approval for straight internships was limited to those in internal medicine, pediatrics, and surgery Pending clarification of the Council's over-all policy on internships, those programs that had been approved in obstetrics and gynecology and pathology prior to this action will continue to be listed as recognized internships There were 147 mixed internships reported available this year These programs include assignments to two or three of the major divisions included in a rotating internship They represent slightly more than 1% of approved programs

TABLE 2 —*Number of Internships by Type of Service, 1953-1954*

Type of Internship	No of Approved Programs	No of Internships: Filled Jan 15, 1954	Vacant Jan 15, 1954	Percentage Filled
Rotating general	766	7,244	1,061	79
Other rotating	65	184	32	81
Totals	831	7,378	1,093	79
Mixed	24	100	47	68
Straight				
Internal medicine	71	385	99	79
Pediatrics	36	129	37	78
Surgery	58	254	84	75
Pathology	15	29	7	81
Totals	180	797	227	78
Grand totals	1,035*	8,275	2,267	78

* Number of internship programs in 836 approved hospitals

The percentage of internships filled varied from 68% of those of the mixed type to 79% of rotating internships The 7% increase in internships filled over last year reflects the lower number offered and an increase in the number of graduates of foreign medical schools serving as interns The number of positions vacant for all types dropped from 2,903 last year to 2,267 this year A further analysis of these vacancies will be found in subsequent sections

NUMBER OF INTERNSHIPS BY TYPE OF HOSPITAL CONTROL

Table 3 gives a breakdown of internships filled and vacant by type of control for federal, other governmental, and the nongovernmental groups The latter type of hospital accounted for 6,665, or 61%, of the total number of internships offered and 5,034, or 61%, of those filled The other governmental (nonfederal) group offered 3,240 positions, or about 33% of the total, and had 2,720, or 33%, of the interns, while the federal hospitals provided 637, or 6%, of the total number and filled 521 positions, or 6% of the interns On the basis of these percentages, there was no disparity between the percentage of internships offered and those filled for any of the three major groups

TABLE 3 —*Number of Internships by Type of Hospital Control, 1953-1954*

Control	No of Approved Hospitals	No of Internships: Filled Jan 15, 1954	Vacant Jan 15, 1954	Percentage Filled
Federal				
U S Army	7	181	0	100
U S Navy	14	168	7	96
U S Public Health Service	5	80	0	100
Veterans Administration	12	88	93	49
Other federal	2	14	16	47
Totals	40	521	116	82
Governmental (nonfederal)				
State	83	572	212	73
County	40	790	111	88
City	52	1,067	163	87
City-county	15	291	34	90
Totals	140	2,720	520	84
Nongovernmental				
Church related	276	1,791	696	72
Nonprofit assn -corp	329	2,752	842	77
Other nonprofit	41	451	80	85
Other nongovernmental	10	40	13	75
Totals	656	5,034	1,631	75
Grand totals	836	8,275	2,267	78

Occupancy rates within these categories, however, varied from 47% in "other federal" hospitals to 100% in the U S Army and U S Public Health Service hospitals In the nongovernmental group, the percentage of positions filled ranged from 72 in the church-related institutions to 85 in the "other nonprofit" hospitals For the groups as a whole, the nonfederal governmental hospitals had the largest percentage of positions filled, showing 84% occupancy, while the federal and nongovernmental hospitals showed 82 and 75%, respectively

The number of interns in federal hospitals rose from 460 last year to 521 this year Positions filled in the other governmental hospitals remained about the same, with 2,754 for 1952-53 and 2,720 for 1953-54 In the nongovernmental group, however, there was an increase of 603 internships filled, with 4,431 reported filled last year and 5,034 for this reporting period The average number of interns on duty in hospitals varied considerably In the federal group these averages were as follows Army 26, Navy 11, Public Health Service 16, Veterans Administration 7, and other federal 7, in the nonfederal governmental hospitals the averages were, state 17, county 20, city 20, city-county 20, and in the nongovernmental group the average number of interns assigned per hospital were, church 7, nonprofit association 8, other nonprofit hospitals 11, and other nongovernmental 4 For all hospitals the average number of internships filled was 10 The average number of internships offered for all hospitals was about 12

Table 4—*Number of Internships by Medical School Affiliation and Bed Capacity, 1953-1954*

Classification	No of Approved Hospitals	No of Internships Filled Jan 15 1954	 Vacant Jan 15 1954	 Percentage Filled
Nonaffiliated				
Less than 176 beds	118	433	175	71
176-249	184	934	365	72
250-324	158	1,152	419	73
325-399	50	539	170	76
400-over	95	1 454	257	84
Totals	614	4,512	1,416	76
Major teaching				
Less than 176 beds	6	45	4	92
176-249	15	108	48	69
250-324	17	184	27	87
325-399	14	178	56	76
400-over	89	2,568	518	83
Totals	141	3 083	653	82
Minor teaching				
Less than 176 beds	10	41	12	77
176-249	21	99	56	64
250-324	19	138	35	80
325-399	13	143	23	86
400-over	18	259	72	78
Totals	81	680	198	77
Grand totals	836	8,275	2,267	78

INTERNSHIPS BY MEDICAL SCHOOL AFFILIATION AND BED CAPACITY

An analysis of internships based on the hospital's participation in undergraduate education is presented in table 4 For purposes of this report and the lists of approved internships, "major teaching" hospitals are considered to be those utilized to a major extent in a medical school's clinical clerkship program, those identified as "minor teaching" hospitals are those used in the clerkship program to a limited extent and a nonaffiliated hospital is one in which undergraduates do not serve as junior or senior clerks There are 222 hospitals approved for intern training, or 26%, that are designated as major or minor teaching hospitals, 141 and 81, respectively They offer 4,614 internships or 44% of the total number available This year they reported 3,763 interns on duty or 46% of those serving

In the nonaffiliated group there were 5,928 intern positions available, 56% of the total, and 4,512 interns serving, or 54% These figures are significant in considering proposals made for solving the intern shortage through eliminating one or another of the major groups of hospitals as training centers for interns For the present at least, neither the nonaffiliated group of hospitals or those affiliated with medical schools could alone provide positions for the number of graduates seeking these appointments

Table 5—*Number of Internships by Census Region and State, 1953-1954*

Census Region and State	No of Approved Hospitals	No of Internships Filled Jan 15 1954	 Vacant Jan 15 1954	 Percentage Filled
New England				
Maine	4	13	11	54
New Hampshire	1	16	0	100
Vermont	2	20	1	95
Massachusetts	36	311	75	81
Rhode Island	6	48	15	76
Connecticut	21	143	51	74
Totals	70	551	153	78
Middle Atlantic				
New York	106	1,371	176	89
New Jersey	40	294	63	82
Pennsylvania	76	534	227	70
Totals	222	2,199	466	82
East North Central				
Ohio	49	525	124	81
Indiana	16	102	82	55
Illinois	60	626	150	81
Michigan	34	389	91	81
Wisconsin	23	135	66	67
Totals	182	1 777	516	77
West North Central				
Minnesota	16	150	76	65
Iowa	10	48	33	59
Missouri	25	298	136	69
North Dakota	4	10	6	63
South Dakota	3	16	3	84
Nebraska	9	48	15	76
Kansas	7	69	12	85
Totals	74	639	281	70
South Atlantic				
Delaware	3	22	6	79
Maryland	18	179	50	78
District of Columbia	11	168	29	85
Virginia	19	150	49	75
West Virginia	7	41	12	77
North Carolina	11	119	49	71
South Carolina	7	70	24	70
Georgia	12	124	49	71
Florida	13	117	13	90
Totals	101	990	281	78
East South Central				
Kentucky	10	76	29	72
Tennessee	17	164	59	73
Alabama	9	55	41	58
Mississippi	2	14	4	78
Totals	38	309	133	70
West South Central				
Arkansas	3	17	22	44
Louisiana	10	182	59	76
Oklahoma	7	53	28	65
Texas	25	296	109	73
Totals	45	548	218	72
Mountain				
Montana	2	4	3	57
Colorado	13	133	20	87
Arizona	6	53	4	93
Utah	7	45	22	67
Totals	28	235	49	83
Pacific				
Washington	17	174	21	84
Oregon	7	68	26	72
California	52	785	123	86
Totals	76	1,027	170	86
Grand totals	836	8,275	2,267	78

Occupancy rates for internships in approved hospitals varied from 71% to 84% in the nonaffiliated group, there being a direct correlation between the size of the hospital and the percentage of internships filled In the major teaching hospitals rates ranged from 69% in institutions of bed capacities from 176 to 249, to 92% in hospitals under 176 beds There was no apparent correlation in this group between size of hospital and occupancy rate In the minor teaching groups the percentage of internships occupied varied from 64%, the lowest for any size hospital in those of 176 to 249 beds, to 86% in hospitals with bed capacities from 325 to 399 Again, there seemed to be no correlation in this group between size and internships filled

INTERNSHIPS BY CENSUS REGION AND STATE

A breakdown of internships filled and vacant based on geographical distribution is presented in table 5 Idaho, New Mexico, Nevada, and Wyoming, in which there are no hospitals approved for intern training, are not shown in this table

TABLE 6—*Stipends by Medical School Affiliation and Bed Capacity, 1953-1954*

(Excluding Federal Hospitals)

	None	$25 or Less	$26-50	$51 75	$76 100	$101 125	$126-150	$151 175	$176 200	$200 Over	Not Reported	No of Hospitals
Nonaffiliated												
Less than 176 beds		1	1	4	23	7	37	5	21	16	3	118
176-249		1	6	9	43	13	40	9	40	22	1	184
250-324			2	14	28	18	36	7	28	22	3	158
325-399			3	11	12	4	11		12	6		59
400-over		2	4	6	18	7	13	3	13	7	1	74
Totals		4	16	44	124	49	137	24	114	73	8	593
Affiliated (Major and Minor Teaching)												
Less than 176 beds		1	1	1	2	3	5	2	1			16
176 249		1	3	8	12	1	12		2		2	36
250-324	1	2	5	4	9	1	2	4	3	2	1	34
325-399		6	1	5	4	2	1		2	1	2	24
400-over	3	15	22	17	13	9	7	3	1	2	1	93
Totals	4	25	32	30	40	16	27	9	9	5	6	203
Grand totals	4	29	48	74	164	65	164	33	123	78	14	796

INTERN STIPENDS

For the past several years there appeared to have been a trend toward higher stipends for interns Analyses of salaries paid interns as reported in the Annual Reports of the Council for 1952 and 1953 seemed to confirm this conclusion This year, however, intern salaries as reported by 796 nonfederal hospitals showed a slowing, if not a reversal of the previous trend (table 6)

This year 155 hospitals, representing 20% of the total, offered salaries of $75 per month or less, 4 medical-school-affiliated hospitals paid no salary to their intern staffs Last year 113 hospitals, about 11%, offered stipends in this range Again, this year there were 393 hospitals offering salaries between $76 and $150 per month, or 49% of the total number Comparable figures for last year showed 350 hospitals with intern salaries in this range, or slightly less than 44% This year, 248 hospitals, representing 30% of the total, paid salaries in excess of $150 per month Last year there were 348 hospitals with salaries in this range, or about 44% of the total number The remaining 1% for both years includes hospitals that did not report the amounts offered

In the nonaffiliated group there is a definite concentration of hospitals in the ranges $76 to $100, $126 to $150, and $176 to $200, presumably indicating that a relatively high number of these hospitals pay salaries of $100, $150 and $200 per month, 375 of 593 hospitals, or about 63% There is not a similar concentration for the affiliated hospitals, their stipends being rather uniformly spread from $25 per month or less through all ranges up to $150 per month The number of these hospitals paying salaries in excess of $150 was relatively small, 29 out of a total of 203 hospitals, or less than 15% The majority of hospitals offering intern salaries of $200 per month and over were nonaffiliated hospitals of less than 325 beds These hospitals generally had lower occupancy rates for their intern positions (table 4) The conclusion may be drawn, therefore, that the salary level is not a decisive factor in attracting an intern staff

HOSPITALS WITH HIGHEST AUTOPSY RATES

A list of 20 federal and 20 nonfederal hospitals having the highest autopsy rates for the reporting period 1953 1954, is presented in table 7 These hospitals are to be commended for their excellent performance in maintaining a necropsy percentage of over 75 for a 12 month period The autopsy rate of the hospital may well be considered a significant index of the interest of the medical staff and hospital administration in scientific advancement

NATIONAL INTERN MATCHING PROGRAM

The Matching Program, after three years of successful operation has become firmly established as the official and generally accepted method of intern appointments The occasional criticism directed toward the program is in most instances based on a misunderstanding of its purposes and procedure

In addition to the American Medical Association the following organizations collaborate in the sponsorship of the Matching Program and in the determination of policies under which it operates the American Hospital Association, the American Protestant Hospital Association, the Catholic Hospital Association, and the Association of American Medical Colleges There are two student representatives on the policy-making committee, one appointed by the American Student Medical Association and the other a student delegate-at-large In addition, the federal services conducting intern programs have liaison representatives to the committee

The Matching Program accepts only those hospitals for participation in the matching procedure that are approved for intern training by the Council on Medical Education and Hospitals The directory of participating hospitals that is distributed to all senior medical students and that is used in the operation of the program is based on the Directory of Approved Internships and Residencies as prepared by the Council and published in THE JOURNAL Hospitals not participating in the program are appropriately identified in the directory and are deleted from the reprint that is sent to applicants for internship appointment and to medical schools This year only 15 hospitals of the total number approved, 844, are not participating

Last year 820 hospitals, offering 10,729 internships, appointed their interns through the program About 95% of the 1953-1954 senior class participated, with 6,412 students seeking internship appointments in accordance with the matching procedure Students appointed to hospitals of their first choice numbered 4,938 (77%), those receiving appointments in their second choice hospitals numbered 669 (10%), 444 students (7%) received appointments to hospitals that they had rated third choice or less The remaining 361 seniors (6%) who were not matched, in most instances had applied to a limited number of hospitals restricting their chances of appointment, since these hospitals either had filled their internships with applicants whom they preferred or had indicated that they did not wish to appoint the person applying

It should be clearly understood that the Matching Program is not a method for "distributing" interns Under the matching procedure an applicant is appointed to the hospital that he had rated highest on his confidential list at which there is an opening for him Hospitals will receive confirmation of acceptance by the Matching Program office for all applicants requested by the hospital, provided the student has not been accepted by a hospital rated higher in his preference list The basic principle under which the Matching Program operates, and, in fact, the primary purpose for its existence, is the preservation of the freedom of the student to elect to intern at the hospital of his choice and of the freedom of the hospital to appoint applicants of its choice

The Matching Program agreements for the intern year 1955-1956 have been distributed to all approved hospitals, from 98 to 99% have returned the agreement indicating they will participate in the program for next year Student participation is expected to be of the same proportion Their agreements are being returned at present [2]

INTERNSHIP REVIEW COMMITTEE

Within the past year the Council has established an Internship Review Committee with the following responsibilities and purposes (1) the evaluation of intern training programs based on surveys made by the Council's field staff, with recommendations to the Council relative to approval for these programs, (2) the review of standards for intern training with recommendations to the Council relative to suggested revisions, and (3) the review of all aspects of intern education with recommendations to the Council for such changes in policy as may be considered appropriate

TABLE 7 —*Internship Hospitals with Highest Autopsy Rates, 1953-1954*

FEDERAL			NONFEDERAL		
1	Letterman Army Hospital San Francisco	99	1	St Lawrence Hospital Lansing Mich	98
2.	Fitzsimons Army Hospital Denver	95	2.	Children's Hospital Los Angeles	93
3	Madigan Army Hospital Tacoma Wash	94	3	University of Nebraska Hospital Omaha	92
4	Brooke Army Hospital San Antonio Texas	94	4	Mary Fletcher Hospital Burlington Vt	88
5	Valley Forge Army Hospital Phoenixville Pa	93	5	University of Illinois Research and Educational Hospitals Chicago	88
6	William Beaumont Army Hospital El Paso Texas	91	6	Mary Hitchcock Memorial Hospital Hanover N H	83
7	U S Public Health Service Hospital San Francisco	90	7	Parkland Hospital Dallas Texas	83
8	Army Medical Center Washington D C	90	8	Indiana University Medical Center Indianapolis	83
9	U S Public Health Service Hospital, Seattle	89	9	St Louis Children's Hospital St Louis	81
10	U S Naval Hospital Great Lakes Ill	89	10	Norwegian Lutheran Deaconess Home & Hosp Brooklyn N Y	80
11	Veterans Admin Hospital Houston Texas	88	11	University of Minnesota Hospitals Minneapolis	79
12	U S Naval Hospital Jacksonville Fla	88	12	George Washington University Hospital Washington D C	78
13	U S Naval Hospital Bremerton Wash	85	13	Milwaukee Children's Hospital Milwaukee	78
14	Veterans Admin Hospital Seattle	83	14	Children's Medical Center Boston	78
15	Veterans Admin Hospital Salt Lake City	83	15	Women and Children's Hospital Chicago	78
16	Veterans Admin Hospital McKinney Texas	83	16	Montana Deaconess Hospital Great Falls Mont	78
17	Veterans Admin Hospital Los Angeles	83	17	Springfield City Hospital Springfield Ohio	78
18	U S Naval Hospital San Diego Calif	83	18	University of California Hospital San Francisco	78
19	U S Naval Hospital Oceanside Calif	83	19	Evanston Hospital Evanston Ill	77
20	U S Public Health Service Hospital New Orleans	81	20	Colorado General Hospital Denver	77

The committee includes representatives from the Council, the American Hospital Association, the Association of American Medical Colleges, the Federation of State Medical Boards in the United States, and the American Academy of General Practice Members of the committee include

JAMES M FAULKNER, *Chairman*, Boston
WALTER L BIERRING, Des Moines, Iowa
ULRICH R BRYNER, Salt Lake City
JOHN DIETRICK, Philadelphia
STEWART HAMILTON, Hartford, Conn
CHARLES T STONE, Galveston, Texas
ARTHUR SPRINGALL, *Secretary*, Chicago

This committee was established to enlist the support of other organizations concerned, directly or indirectly, with intern education This cooperative effort involving several national organizations is expected to provide a broader base for considering the problems relating to intern education and, more particularly, to provide for a more comprehensive and critical review of approved internship programs The committee has been organized on a permanent basis and will act in a recommendatory and advisory capacity to the Council

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[2] For further information on the plan address request to the Director, National Intern Matching Program 185 N Wabash Ave Chicago

AD HOC COMMITTEE ON INTERNSHIPS

A special committee composed of members of the House of Delegates was appointed in February of this year "to study the intern problem" It has been designated as the Ad Hoc Committee on Internships and has the following membership

George S Klump, *Chairman*, Pennsylvania
Abraham H Aaron, New York
H Russell Brown, South Dakota
George A Earl, Minnesota
William A Hyland, Michigan

A progress report was presented to the House of Delegates at the San Francisco meeting last June, in which the work of the committee to date was reviewed[3]

The committee has held several meetings since its organization and has reviewed a vast amount of material relative to the internship, including resolutions on the subject that have been introduced in the House of Delegates, reports of previous committees, actions relating to internship training taken by state and county medical societies, as well as hospital organization, and data on intern education and internships that were available at the Council's office It is anticipated that meetings with representatives of several other organizations will be held before the committee submits its final report, probably in December

RESIDENCIES

In addition to internship approval, the Council extends official recognition to residency training in the 19 specialties in which authorized examining boards have been established, in four medical subspecialties, allergy, cardiovascular diseases, gastroenterology, and pulmonary diseases, and in four other areas, contagious diseases, malignant diseases, occupational medicine, and general practice For many years approval for residency
ining has been granted by the Council in concurrence
the specialty board concerned

the past year and a half, residency review
ommittees, with representatives from the Council and the appropriate American boards have been established in 10 specialties, including internal medicine, neurological surgery, orthopedic surgery, otolaryngology, pediatrics, physical medicine—rehabilitation, preventive medicine, proctology, psychiatry—neurology, an
ology Discussions leading toward the establis
similar committees in six other specialties are p
being conducted These joint committees have
up to coordinate the efforts of the Council
respective board in approving residency programs
of these committees have already had a number o
ings at which applications for approval were consi
training standards reviewed, and general policies re
to residency approval discussed

At its spring one of these committees,
Residency Revie for Pediatrics, announ

a statement of policy relating to training requirements for this specialty that, in effect, will assure that two years of fully integrated training will be provided for in all approved programs after July 1, 1957[4] Other committees have already adopted similar policies or are considering them

These cooperative efforts involving the Council and the boards, with the respective colleges represented in the two major fields of internal medicine and surgery, had their inception in a committee established prior to World War II, which acted as a liaison group for the Council, the American Board of Internal Medicine, and the American College of Physicians This committee was reconstituted last year as the Residency Review Committee for Internal Medicine In 1951, the Conference Committee on Graduate Training in Surgery was established representing the Council, the American Board of Surgery, and the American College of Surgeons, it acts in a similar capacity to the review committees in the field of general surgery This concept of direct collaboration between the organizations involved in the approval of residency programs was the basis for the establishment of the present Residency Review Committee It is anticipated that a more efficient and effective procedure for the review and approval of residency programs will be possible through this mechanism

In one of the following tables and in the list of approved programs, residencies in general surgery have been classified in several different categories, depending on the number of years for which the service is approved Apparently some confusion still exists as to the status of those programs designated as one or two year services These residencies are approved by the Council, acting independently, as offering satisfactory training in preparation for the surgical specialties They do not carry credit toward qualifying for examination by the American Board of Surgery That board will accept training of less than three years' duration only when it is integrated with or contributory to a fully approved residency program

The majority of examining boards in the surgical specialties, however, presently either recommend or require that a candidate for examination complete at least one year of training in general surgery as part of his preparation for the specialty Programs approved by the Council at the one or two year level offer basic surgical training
of this typ most instances, they do not provide the
advanced in general surgery required in a
fully appr am They do, however, provide
training in of general surgery and basic tech-
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4 Residency Training in
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10) 1954

There were 10,412 first year appointments available this year, of which 7,967, or 77%, were filled Of the 23,630 residencies offered at all levels—first, second, third, and fourth year—there were 18,619 filled, or about 79% of the total Comparable statistics for last year showed 76% of first year residencies occupied and the same figure, 76%, for all residencies These small increases in the occupancy rate for residency positions can be attributed primarily to the larger number of graduates from foreign medical schools appointed as residents in hospitals throughout the country In a recent article published in THE JOURNAL the number of foreign graduates serving as residents in this country was reported as having increased from 3,035 in 1952-1953 to 3,802 in 1953-1954 [5]

TABLE 8—*Number of Residencies by Specialty, 1953-1954*

		No of Residencies					
		First Year Appointments			Total Appointments (All Years)		
Specialty	No of Approved Programs	Filled Jan 1 1954	Vacant Jan 1 1954	Percentage Filled	Filled Jan 1 1954	Vacant Jan 1 1954	Percentage Filled
Allergy	16	13	8	61	17	10	73
Anesthesiology	155	401	94	81	746	203	79
Cardiovascular disease	29	85	8	82	64	14	80
Contagious diseases	10	29	0	100	33	0	100
Dermatology syphilology	75	90	25	79	207	44	83
Gastroenterology ..	16	8	3	73	23	4	83
General practice	131	241	152	62	289	210	58
Internal medicine	601	1,559	413	80	3,664	833	81
Malignant diseases	11	17	12	59	21	14	60
Neurological surgery	84	65	25	73	216	54	80
Neurology	76	76	44	64	160	90	64
Obstetrics	65	86	23	76	129	47	74
Gynecology	10	12	1	93	39	2	95
Obstetrics-gynecology	352	589	99	86	1,514	167	90
Ophthalmology	163	168	35	85	507	72	88
Orthopedic surgery	261	244	86	74	718	187	78
Otolaryngology	111	94	57	63	251	127	67
Pathology	491	440	256	64	974	649	61
Pediatrics	249	634	105	86	1,194	167	88
Physical medicine	46	30	32	49	69	68	51
Plastic surgery	27	23	3	89	62	7	90
Proctology	12	10	4	72	13	12	52
Psychiatry	260	649	336	66	1 632	703	70
Pulmonary diseases	107	173	79	69	250	132	66
Radiology	392	397	191	68	1 027	385	73
Surgery A	520	1 484	201	88	4 056	471	89
Surgery B	121	154	67	70	181	98	65
Thoracic surgery	60	61	6	92	120	13	91
Urology	221	163	75	69	446	158	74
Totals *	4 705	7,965	2,445	77	18 617	5 011	79

* These totals do not include programs in occupational medicine and preventive medicine current statistics for which were not available

Surgery A—Programs leading to certification by the American Board of Surgery

Surgery B—Programs approved as offering training in general surgery in preparation for a residency in a surgical specialty

Specialties in which more than 1,000 residency appointments are offered include internal medicine, obstetrics and gynecology, pathology, pediatrics, psychiatry, radiology, and surgery Percentages of positions filled in these specialties ranged from 61% in pathology to 93% in the four year approved surgical residencies There were fewer than 100 residencies offered in hospitals throughout the country in the following specialties and subspecialties allergy, cardiovascular diseases, contagious diseases, gastroenterology, malignant diseases, gynecology (separate program), occupational medicine, plastic surgery, and proctology The occupancy rate in these residencies varied from 52% in proctology to 100% in contagious diseases

In the Annual Report last year it was noted that the internship and residency occupancy rates had reached about the same level, 72% for the former and 76% for the latter This year the rates are almost identical with 78% of internships filled and 79% of all residency positions occupied The point has been reached where the over-all problem of house staffing in hospitals throughout the country should be considered in its entirety, with internship and residency vacancies recognized as two aspects of the same fundamental problem—the increasing demand for intern and resident service without a comparable increase in the number of available applicants

RESIDENCIES BY TYPE OF HOSPITAL CONTROL

An analysis of residency positions filled and vacant as of Jan 1, 1954, in federal, other governmental, and nongovernmental hospitals is presented in table 9 Federal hospitals offered 3,661 appointments, or about 16% of the total number in 109 hospitals Of these, the Veterans Administration Hospitals accounted for 2,848 positions, or 78% of all residencies in federal institutions, the Army 385, or 11%, the Navy 210, or 6%, the U S Public Health Service 112, or 3%, and other federal hospitals 106, or 2%, of their total number Occupancy rates in these hospitals varied from 50% in the Air Force hospitals to 92% in the Public Health Service group

There were 8,275 residencies in 318 other governmental (nonfederal) hospitals this past year, or 35% of the over-all figure Of these, state hospitals offered 3,608, city hospitals 2,728, county institutions 1,560, and the city-county group, 379 The percentage of positions filled in these hospitals ranged from 80% in the state hospitals to 85% in the city institutions The group as a whole had the highest percentage of residencies filled, 83% compared to 79% for all types

The nongovernmental hospitals offered 11,694 appointments, representing 51% of the total Included in this group are the nonprofit association, church-controlled, and other community-type hospitals Percentagewise they were slightly below the over-all average for positions filled, with an occupancy rate of 78% as compared to 79% for all hospitals in which residency training is being conducted Compared with last year the nonfederal governmental group show an increase of 896 positions occupied, from 5,927 in 1952-1953 to 6,823 residents in 1953-1954 The nongovernmental community hospital group showed a comparable increase of 934, with 8,151 residents reported on duty last year and 9,085 this year It can be assumed that the increase in the number of positions filled in these two groups of hospitals, 1,830 additional residents, represents to a considerable extent graduates of foreign medical schools

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[5] Diehl H. S., Crosby E. L., and Kaetzel, P K. Alien Physicians Training in Hospitals in the United States J A. M A 156 1 2 (Sept. 4) 1954

NUMBER OF RESIDENCIES BY HOSPITAL BED CAPACITY

Table 10 presents a breakdown of residencies filled and vacant based on the size of the hospital About 60% of all residencies were offered in hospitals of 400 or more beds There were 360 hospitals in this group providing 14,417 positions Hospitals of 325 to 399 bed capacity, 114 in number, provided for 2,371 residencies, or 10% of the total, those of 250 to 324 beds, 203 hospitals, offered 2,859 residencies, or 12%, hospitals of 175 to 249 bed size, 224 hospitals, had 2,005 residencies available, or 8%, those with less than 175 beds, 229 hospitals, offered 1,380 positions, or 6% of the total The additional 4% of residencies were offered in hospitals the sizes of which were not specified

The largest percentage of residencies filled, 82%, was in the 400 bed group Otherwise, there was little variation in the occupancy rate between hospitals in the several other bed capacity ranges This leveling of occupancy rates for hospitals of under 175 beds through those in the 325 to 399 bed range represents a fairly marked change from last year, when hospitals with less than 400 beds showed occupancy rates as low as 66% This change, again, can be assumed to be due to the larger number of graduates of foreign medical schools serving in these hospitals, particularly those in the 250 to 324 bed range, in which there was an increase from last year of 505 residents serving, and those in the 400 and over bed size, in which there were 1,077 more residents reported this year than last As shown in table 4, the majority of hospitals of bed capacities from 250 to 324 are nonaffiliated institutions Hospitals in the 400 bed and over range are about equally divided between those affiliated with a medical school and those not thus affiliated

RÉSUMÉ

Data on internships and residencies in Council-approved hospitals have been presented in this report, including 10 tables analyzing the situation with respect to positions filled as of Jan 1, 1954 Brief statements describing the functions and activities of two committees, the Internship Review Committee and the Ad Hoc Committee on Internship are also included, as well as a short summary of the present status of the National Intern Matching Program

There are currently 1,347 hospitals in the United States and its possessions in which Council-approved internship and residency programs are being conducted, with 684 hospitals offering training in both categories, 503 with residency programs only, and 160 conducting internship programs only These hospitals had positions available for 34,172 physicians this past year, including 10,542 internship and 23,630 residency appointments

For the period 1953-1954, 26,894 of these positions were reported filled, representing 8,275 interns and 18,619 residents The occupancy rate for both categories was about the same, 78% for internships and 79% for residencies During the period 1945-1954 the number of internships increased from 8,429 to 10,542 During the same period residency positions increased from 7,666 to the present figure of 23,630

While this doubling of the number of house staff positions has inevitably resulted in a higher vacancy rate, it has also had the effect of increasing markedly the number of physicians serving in this capacity, from an estimated 15,000 in 1945 to over 26,000 this year The fact that one physician out of every seven engaged in providing professional care to patients now serves in a full-time capacity in hospitals throughout the country is significant both in terms of patient care and medical education

TABLE 9 —*Number of Residencies by Type of Hospital Control, 1953-1954*

			No of Residencies					
			First Year Appointments			Total Appointments (All Years)		
Control	No of Approved Hospitals	No of Approved Programs	Filled Jan 1, 1954	Vacant Jan 1, 1954	Percentage Filled	Filled Jan 1, 1954	Vacant Jan 1, 1954	Percentage Filled
Federal								
U S Army	11	78	88	33	73	316	69	83
U S Air Force	3	8	6	8	43	8	8	50
U S Navy	8	79	32	45	42	149	61	71
U S Public Health Service	8	30	34	4	90	103	9	92
Veterans Administration	76	422	722	441	63	2,072	776	73
Other federal	3	16	21	3	88	63	27	70
Totals	109	632	903	534	63	2,711	950	75
Governmental (Nonfederal)								
State	155	497	1 161	308	80	2 870	729	80
County	67	272	659	121	85	1 800	260	84
City	78	429	1 030	191	85	2,335	393	85
City county	18	109	131	29	82	309	70	82
Totals	318	1 307	2,951	649	83	6,823	1,452	83
Nongovernmental (all types)	727	2 767	4,063	1,262	77	9,085	2 609	78
Grand totals	1 154	4 706	7 907	2,445	77	18,619	5,011	79

TABLE 10 —*Number of Residencies by Bed Capacity, 1953-1954*

		No of Residencies					
		First Year Appointments			Total Appointments (All Years)		
Classification	No of Approved Hospitals	Filled Jan 1, 1954	Vacant Jan 1, 1954	Percentage Filled	Filled Jan 1 1954	Vacant Jan 1 1954	Percentage Filled
Less than 175 beds	229	510	157	76	1 048	332	76
175-249	224	738	285	73	1 480	519	75
250-324	203	993	359	74	2,105	754	74
325-399	114	820	265	76	1,705	576	76
400-over	360	4,707	1,314	79	11,740	2 677	82
Not specified	24	181	65	77	445	153	75
Grand totals	1,154	7,967	2,445	77	18,619	5,011	79

APPROVED INTERNSHIPS

Council on Medical Education and Hospitals of the American Medical Association
535 North Dearborn Street, Chicago 10

Revised to September 1, 1954

HOSPITALS, 848, INTERNSHIPS, 11,040

The following general hospitals, investigated and approved by the Council on Medical Education and Hospitals, are considered in position to furnish acceptable intern training in accordance with standards adopted by the American Medical Association Three types of internships are approved by the Council—rotating, mixed and straight

1 A rotating internship is defined as one which provides supervised experience in internal medicine, surgery, pediatrics, obstetrics and their related subspecialties, together with experience in laboratory and radiologic diagnosis

2 A mixed internship is defined as one which provides supervised experience in two or more, but not in all, of the clinical divisions named

3 A straight internship is defined as one which provides supervised experience in a single department, although it may include limited opportunity for work in a related subspecialty Straight internships are now approved in internal medicine, surgery and pediatrics

Hospitals approved for internships that are used by medical schools for undergraduate clinical clerkships on inpatient services have been identified in the following lists by the symbols X and x Hospitals have been identified with symbol X when a medical school has indicated that the hospital is a major unit in the school's teaching program Hospitals have been identified with the symbol x when a medical school has indicated that the hospital is used to a limited extent in the school's teaching program Certain internships in hospitals designated as teaching hospitals may not provide for assignments to teaching services Other internships may provide for only a portion of the internship period being spent on teaching services Prospective interns desiring specific information concerning internship assignments to teaching services in a hospital are advised to communicate with the dean of the medical school with which the hospital is affiliated Medical school affiliations are indicated by footnotes 10 to 86 placed immediately after the symbol X or x. The list of medical schools appears on page 344 The plus (+) sign indicates additional approval for residencies in specialties, as shown in the Council s list of Approved Residencies and Fellowships The beginning stipends for Federal hospitals have not been listed, they are established in accordance with government pay tables When applying for internships in Air Force, Army, Navy or Public Health Service hospitals, applications should be directed to the medical departments of the Air Force Army, Navy or the United States Public Health Service and not to the individual hospitals Although applications are made to the service rather than to the individual hospitals, all of the services ask students to list three hospitals in order of preference Every possible effort is made to place successful candidates in accordance with their desires Because of the needs of the service it should be understood that students may, in some instances, be assigned to other hospitals than those for which they have indicated a preference

Hospitals listed below (pages 323 to 343) make first year internship appointments through the National Intern Matching Program, Inc The number and type of internships as listed represent appointments for the intern year 1955-1956

FEDERAL

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
UNITED STATES ARMY—Hospitals 8 Internships 150										
Letterman Army Hospital +1 3 Presidio San Francisco	Fed	1 635	12,930	Req	90	12	No		150 Rotating General Office of the Surgeon General Department of the Army Washington 25 D C Attn Chief Personnel Division	00411
Fitzsimons Army Hospital +1 4 Denver 8	Fed	2,000	9,580	Req	95	12	No			
Army Medical Center +1 4-x19-20 6900 Georgia Ave N W Washington 12, D C	Fed	1 700	14,804	Req	90	12	No			
Valley Forge Army Hospital +1 4 Phoenixville Pa	Fed	1,500	7 170	Req	93	12	185			
William Beaumont Army Hospital +4 El Paso Texas	Fed	1 000	12,625	Req	91	12	No			
Brooke Army Medical Center +4 Fort Sam Houston San Antonio Texas	Fed	1 700	17 499	Req	94	12	No			
Madigan Army Hospital +1 4 x83 Tacoma 9 Wash	Fed	1,399	10,980	Req	94	12	No			
Tripler Army Hospital +1 Moanalua N King St (Oahu Island) Honolulu T H	Fed	1,200	17 057	Req	85	12	No			
UNITED STATES AIR FORCE—Hospitals 11 Internships 60										
The 60 Air Force internships are divided among the Army hospitals listed above									60 Rotating General Directorate of Staffing and Education Office of the Surgeon General Headquarters U S Air Force Washington 25 D C	00311
UNITED STATES NAVY—Hospitals 14 Internships 176										
U S Naval Hospital +1 3 8750 Mountain Blvd Oakland 14 Calif	Fed	1 800	17 730	Req	80	12	No		176 Rotating General Bureau of Medicine and Surgery Navy Department Washington 25 D C	00211
U S Naval Hospital 1 Camp Pendleton Oceanside Calif	Fed	1 480	18,100	Req	83	12	No			
U S Naval Hospital +1 4 San Diego 34 Calif	Fed	2 600	27,816	Req	83	12	No			
U S Naval Hospital 1 3 Jacksonville Fla	Fed	525	6,869	Req	88	12	No			
U S Naval Hospital 1 Pensacola Fla	Fed	469	7 685	Req	70	12	No			
U S Naval Hospital +1 3 4 Training Center Great Lakes Ill.	Fed	950	12,091	Req	89	12	No			
U S Naval Hospital +1 4-x19 Rockville Pike Bethesda 14 Md	Fed	1,800	15,302	Req	72	12	No			
U S Naval Hospital +1 4 x37 1 Broadway Chelsea 50 Mass	Fed	946	9,171	Req	75	12	No			
U S Naval Hospital +1 Linden Blvd St Albans 25 N Y	Fed	1,875	11,531	Req	71	12	No			

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program spon[illegible] the Amer Medical Association the American Hospital Association the Association of American Medical Colleges and other [illegible]ating or[illegible].
Abbreviations and other references will be found on pages 344 and 345

FEDERAL—Continued

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
UNITED STATES NAVY—Continued										
U S Naval Hospital 16th and Pattison Ave, Philadelphia 45	Fed	1 400	12,407	Req	60	12	No			
U S Naval Hospital 3rd and Cypress Sts Newport, R I	Fed	675	7,422	Req	54	12	No		170 Rotating General Bureau of Medicine and Surgery, Navy Department Washington 25 D C	[illegible]
U S Naval Hospital 1 Naval Base Charleston S C	Fed	450	5,716	Req	61	12	No			
U S Naval Hospital +1 3 4 Portsmouth Va	Fed	2,150	24,081	Req	60	12	No			
U S Naval Hospital 1 Naval Base Bremerton Wash	Fed	400	4,936	Req	85	12	No			
UNITED STATES PUBLIC HEALTH SERVICE—Hospitals, 5, Internships, 78										
U S Public Health Service Hospital +1-3 4 15th Ave and Lake St San Francisco 18	Fed	431	4,291	Req	90	12	179		72 Rotating General 4 Mix Med Surg Public Health Service Hospitals Public Health Service Department of Health Education and Welfare, Washington 25, D C Attn Chairman Committee on Residents and Interns	00111 00121
U S Public Health Service Hospital +1 3 4 210 State Street New Orleans 18	Fed	436	4,750	Req	81	12	217			
U S Public Health Service Hospital +1-4-X35 Wyman Pk Dr and 31st St Baltimore 11	Fed	400	6 825	Req	77	12	159			
U S Public Health Service Hospital +1 Bay St and Vanderbilt Ave Staten Island 4, N Y	Fed	742	9,741	Req	69	12	236			
U S Public Health Service Hospital +1-4-X83 14th and Judkins, Seattle 14	Fed	379	4,295	Req	89	12	279			
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE—Hospitals, 2, Internships, 30										
Freedmen's Hospital +1 3 4-X21 6th and Bryant Sts N W, Washington 25 D C	Fed	492	8 317	Req	55	12			18 Rotating General	70811
St Elizabeths Hospital +1 3 4-X19-X20 2700 Nichols Ave, S E Washington 20, D C	Fed	411	2,403	Req	69	12	166		12 Rotating General	80411
VETERANS ADMINISTRATION—Hospitals, 10, Internships, 183										
Veterans Administration Hospital +1-3-X11 00 E Roosevelt Rd, Little Rock, Ark	Fed	470	4,571	Req	80	12	148		3 Rotating General 3 Straight Medicine 3 Straight Surgery	01011 01032 01033
Veterans Administration Hospital +1-3 X13 5700 E 7th St Long Beach 4, Calif	Fed	1,600	9,572	Req	81	12	175		36 Rotating General 4 Straight Medicine	02811 02832
Veterans Administration Hospital +1-2-X13 Wilshire and Sawtelle Blvds, Los Angeles 25	Fed	1,354	10,135	None	83	12 24	177		40 Rotating General	03011
Veterans Administration Hospital +1-X22-X23 5908 Peachtree Rd Atlanta, Ga	Fed	300	5,028	Req	73	12	212		7 Straight Medicine	11732
Veterans Administration Hospital +1-X63 Will Rogers Field, Oklahoma City	Fed	338	2,010	None	80	12	270		6 Straight Medicine	58032
Veterans Administration Hospital +1-2-X76 4500 Lancaster Rd, Dallas 2 Texas	Fed	347	3,203	None	75	12	189		10 Straight Medicine	88732
Veterans Administration Hospital +1-2-4-X78 2002 Holcombe Blvd, Houston 31, Texas	Fed	1 027	7,302	Req	88	12	241		40 Rotating General	73911
Veterans Administration Hospital +1-2-X76 McKinney, Texas	Fed	593	5 427	None	83	12	242		12 Straight Medicine 4 Straight Surgery	72032 72033
Veterans Administration Hospital +-X79 12th Ave and E St Salt Lake City 3	Fed	194	2,544	None	83	12	246		3 Rotating General 4 Straight Medicine	78311 73332
Veterans Administration Hospital +1-2-X82 Broad Rock Rd and South Blvd, Richmond 19, Va	Fed	1,100	8,548	Req	60	12	144		8 Straight Medicine	74532

NONFEDERAL

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
ALABAMA—Hospitals, 9, Internships, 103										
Birmingham Baptist Hospital +1-3 708 Tuscaloosa Ave, and 2230 Highland Ave, Birmingham	Church	290	11,178	None	42	12	147	200	12 Rotating General	90311
Carraway Methodist Hospital +1 3 2506 16th Ave N, Birmingham 4	Church	233	9,071	Req	41	12	No	150	9 Rotating General	00611
Jefferson Hillman Hospital +1-4-X10 619 South 19th St, Birmingham	State	601	24,133	Req	38	12	No	100	36 Rotating General	00711
St Vincent's Hospital 1 3 2701 Ninth Ct S Birmingham	NPAssn	200	7,519	Req	35	12	147	250	6 Rotating General	[illegible]
South Highlands Infirmary 1 3 1127 S 12th St, Birmingham 5	Corp	159	5,436	Req	36	12	147	250	6 Rotating General	91311
Lloyd Noland Hospital +1 3 Fairfield	NPAssn	271	8 872	Req	46	12	No	150	12 Rotating General	00811
Holy Name of Jesus Hospital 1 3 Moragne Park, Gadsden	Church	137	9,261	Req	38	12	No	150	3 Rotating General	00911
*City Hospital + 850 St Anthony St, Mobile 16	Cy Co	283	7,455	Req	49	12	No	100	14 Rotating General	
Druid City Hospital 809 Birmingham Rd, Tuscaloosa	Cy Co	231	10,204	Req	25	12		200	5 Rotating General	92011
ARIZONA—Hospitals, 6, Internships, 60										
Good Samaritan Hospital +1-3 1033 E McDowell Rd, Phoenix	Church	230	12 768	Req	39	12	151	200	15 Rotating General	01111
Maricopa County General Hospital +1-3 3435 West Apache Rd, Phoenix	County	425	8,040	Req	30	12		150	4 Rotating General	[illegible]
Memorial Hospital +1 3 1200 S Fifth Ave Phoenix	NPAssn	189	7,248	Req	33	12	151	200	10 Rotating General	01311
St Joseph's Hospital +1 W Thomas Rd Phoenix	Church	320	15,062	Req	55	12	151	200	15 Rotating General	01211
St Mary's Hospital and Sanatorium +1 3 St Mary's Rd, Tucson	State	316	14,027	Req	45	12	119	200	10 Rotating General	01411
Tucson Medical Center +1 3 E Grant Rd and Beverly Blvd, Tucson	NPAssn	200	8,333	Req	46	12	119		6 Rotating General	01511

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NONFEDERAL

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
ARKANSAS—Hospitals 3 Internships 55										
Arkansas Baptist Hospital +1 1700 W 13th St Little Rock	Church	294	13,383	None	30	12	102	125	12 Rotating General	01611
St Vincent Infirmary +1 2 1000 High St Little Rock	State	210	9 403	Req	81	12		200	12 Rotating General	01711
University Hospital +1 2-X11 11th and McAlmont St. Little Rock	State	197	5 642	Req	58	12	154	120	15 Rotating General 3 Straight Medicine 3 Straight Surgery 4 Straight Pediatrics 6 Straight Ob -Gyn	01811 01832 01833 01834 01835
CALIFORNIA—Hospitals 45 Internships 798										
General Hospital of Riverside County +1-X12 [illegible] Magnolia Ave Arlington	County	321	4,351	Req	42	12	120	170	8 Rotating General	[illegible]
*Kern General Hospital +1 1830 Flower St Bakersfield	County	496	8,265	Req	60	12	No	250	12 Rotating General	
Herrick Memorial Hospital +1 2 4 2001 Dwight Way Berkeley 4	NPAssn	201	9,237	Req	63	12	No	55	6 Rotating General	02011
San Joaquin General Hospital +1 French Camp	County	720	9,108		47	12	No	150	15 Rotating General	02111
General Hospital of Fresno County +1-4 4461 Ventura Ave Fresno	County	635	10,629	Req	25	12	No	150	20 Rotating General	02211
Glendale Sanitarium and Hospital +1 1509 E Wilson Ave Glendale 6	Church	225	10 114	Req	42	12	No	151	12 Rotating General	02311
Loma Linda Sanitarium and Hospital +1 2 Loma Linda	Church	166	6 003	Req	61	12	No	192	8 Rotating General	02411
St Mary s Long Beach Hospital 1 2 509 E 10th St Long Beach 13	Church	250	14 162	Req	33	12	No	125	6 Rotating General	02611
Seaside Memorial Hospital +1 2 1401 Chestnut Ave Long Beach 13	NPAssn	370	18 133	Req	20	12	174	75	12 Rotating General	02711
California Hospital +1-3 1414 S Hope St Los Angeles 15	Church	309	14,590	Req	50	12	141	125	13 Rotating General	02911
Cedars of Lebanon Hospital +1-3 4833 Fountain Ave Los Angeles 29	NPAssn	466	13,345	Req	55	12	174	80	14 Rotating General	03011
Children s Hospital +1 2 X14 4614 Sunset Blvd Los Angeles 27	NPAssn	226	8,364	Req	93	12	176	40	2 Straight Pediatrics	03134
Hospital of the Good Samaritan +1 2 1212 Shatto St Los Angeles 17	Church	480	14,194	Req	40	12	142	140	10 Rotating General	03211
Los Angeles County Hospital +1-4-X12 14 1200 N State St Los Angeles 33	County	3,206	77 649	Req	29	12	No	75	130 Rotating General	03311
Methodist Hospital of Southern California +1-3 2825 S Hope St Los Angeles 7	Church	206	9,602	Req	31	12	No	125	12 Rotating General	03411
Presbyterian Hospital-Olmstead Memorial +1-3 1322 N Vermont Ave Los Angeles 27	Church	300	11,626	Req	31	12	142	75	10 Rotating General	03511
Queen of Angels Hospital +1-3 2301 Bellevue Ave Los Angeles 26	Church	502	19,831	Req	50	12	No	100	20 Rotating General	03611
St Vincent s Hospital +2 2131 W Third St., Los Angeles 5	Church	243	10 414	None	41	12	142	100	6 Rotating General	03711
Santa Fe Coast Lines Hospital + 610 S St Louis St Los Angeles 23	NPAssn	196	5,514	Req	61	12	142	125	9 Rotating General	03811
White Memorial Hospital +1 2-X12 312 N Boyle Ave Los Angeles 33	Church	207	8,603	Req	55	12	No	134	16 Rotating General	04011
Highland-Alameda County Hospital +1-3-4 2701 14th Ave Oakland 6	County	429	12 706	Req	43	12	155	100	32 Rotating General	04111
Kaiser Foundation Hospital +1-3 280 W MacArthur Blvd. Oakland	NPAssn	300	16 158	None	73	12	156	75	44 Rotating General	04211
Orange County General Hospital 1 2 12071 Santa Ana Blvd Orange	County	576	5 085	Req	57	12	No	181	18 Rotating General	04311
Collis P and Howard Huntington Memorial Hospital +1-3 100 Congress St Pasadena 5	NPAssn	293	13 465	Req	59	12	178	187	9 Rotating General	04411
Sacramento County Hospital +1 2 Sacramento 17	County	580	12,241	Req	46	12	No	120	22 Rotating General	04611
San Bernardino County Charity Hospital + x12 780 E Gilbert St San Bernardino	County	412	6,234	Req	43	12	No	130	13 Rotating General	04711
Mercy Hospital +1 2 Hillcrest Dr San Diego 3	Church	348	17,394	Req	42	12	No	150	10 Rotating General	04811
San Diego County General Hospital +1-3 4 N Front St San Diego 3	County	769	7,956	Req	55	12	232	125	15 Rotating General	04911
Children s Hospital +1 2-X16 3700 California St San Francisco 18	NPAssn	219	7 116	Req	58	12	No	100	6 Rotating General	05011
Franklin Hospital +1-3 14th and Noe Sts San Francisco 14	NPAssn	250	8 117	None	50	12	No	65	16 Rotating General	05111
French Hospital +1-3 4131 Geary Blvd San Francisco 18	NPAssn	225	6,807	Req	35	12	No	75	10 Rotating General	05211
Mary s Help Hospital +1-3 145 Guerrero St. San Francisco 3	Church	185	7,592	Req	85	12	No	100	6 Rotating General	05311
Mount Zion Hospital +1-3 4 1600 Divisadero San Francisco 15	NPAssn	295	10,571	Req	70	12	No	100	14 Rotating General	05411
St Joseph s Hospital +1 2 Buena Vista Ave San Francisco 17	Church	200	7,369	Req	37	12	No	75	6 Rotating General	05511
St Luke s Hospital +1 2 1580 Valencia St San Francisco 10	Church	229	8 490	Req	49	12	No	100	10 Rotating General	05611
St Mary s Hospital +1 2 2200 Hayes St San Francisco 17	Church	371	11,622	Req	62	12	No	100	15 Rotating General	05711
San Francisco Hospital +1 2 4 X15-16 22d St and Potrero Ave San Francisco 10	CyCo	1,203	22,827	Req	35	12	262	120		
Stanford University Service Office of the Dean Stanford University School of Medicine 2398 Sacramento St San Francisco 15									31 Rotating General	05911
University of California Service Dr Henry D Brainerd San Francisco Hospital									32 Rotating General	05[illegible]11
Southern Pacific General Hospital +1 2 1400 Fell St San Francisco 17	NPAssn	474	7 425	Req	63	12	125	100	24 Rotating General	0[illegible]11
Stanford University Hospitals +1 2-X15 Clay and Webster Sts San Francisco 15 Office of the Dean Stanford University School of Medicine 2398 Sacramento St San Francisco 15	NPAssn	355	11,[illegible]	Req	6[illegible]	12	No	25	7 Straight Medicine 8 Straight Surgery 1 Straight Pediatrics	0[illegible]12[illegible] 0[illegible]123 0[illegible]131

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NONFEDERAL

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CALIFORNIA—Continued										
University of California Hospital +[1, 3]-X16 Parnassus and Third Aves, San Francisco 22 Dr John B Lagen Associate Dean School of Medicine, University of California San Francisco 22	State	280	8,808	Req	78	12	180	50	8 Rotating General 4 Mixed (Med Ob Gyn) 2 Mixed (Med -Surg) 8 Straight Medicine 6 Straight Surgery 4 Straight Pediatrics 2 Straight Pathology	06211 06208 06224 06232 06233 06234 06235
Santa Clara County Hospital +[1] Los Gatos Rd San Jose 14	County	465	5,806	Req	51	12	No	135	10 Rotating General	06311
Santa Barbara Cottage Hospital +[1, 3] 320 W Pueblo St Santa Barbara	NPAssn	198	6,945	Req	60	12	210	75	10 Rotating General	06411
St John's Hospital + 1328 22nd St Santa Monica	Church	222	11,510	Req	60	12	140	125	6 Rotating General	06511
Santa Monica Hospital +[1, 3] 1250 16th St Santa Monica	Church	178	10,944	Req	47	12	285	125	12 Rotating General	06611
Harbor General Hospital +[1, 3, 4]-X13 1124 W Carson St Torrance	County	796	10,195	Req	52	12	No	75	30 Rotating General	06711
COLORADO—Hospitals, 11, Internships, 123										
Glockner Penrose Hospital +[1, 3] 2200 N Tejon St Colorado Springs	NPAssn	218	6,208	Req	57	12	No	150	3 Rotating General	06811
General Rose Memorial Hospital +[1, 3] 1050 Clermont St Denver 20	NPAssn	250	11,903	Req	51	12	126	75	9 Rotating General	06911
Mercy Hospital [1, 3] 1619 Milwaukee St Denver	Church	250	10,375		36	12	280	150	9 Rotating General	07011
Porter Sanitarium and Hospital [1, 3] 2525 S Downing St Denver 10	Church	210	7,991	Req	50	12	149	163	7 Rotating General	07111
Presbyterian Hospital +[1-3]-X17 19th and Gilpin Denver 6	NPAssn	198	8 856	Req	58	12	127		10 Rotating General	07211
St Anthony Hospital +[1, 3] W 16th and Quitman Sts Denver 4	Church	235	10,008	Req	37	12	No	150	8 Rotating General	07311
St Joseph's Hospital +[1] 1818 Humboldt St Denver 6	Church	348	13 315	Req	63	12	No	75	11 Rotating General	07411
St Luke's Hospital +[1-3] 601 E 19th Ave Denver 3	Church	380	14,515	Req	52	12	127	75	14 Rotating General	07511
University of Colorado Medical Center Colorado General Hospital +[1]-X17 4200 E 9th Ave Denver 20	State	284	6,690	None	77	12	No	50	16 Rotating General	07611
Denver General Hospital +[1, 3]-X17 W 6th Ave and Cherokee St Denver 4	CyCo	440	7 042	Req	68	12	291	50	16 Rotating General 16 Community Rotating	07711 07710
Weld County General Hospital [1, 3] 1801 16th St, Greeley	County	220	7,342	Req	48	12	No	100	4 Rotating General	07811
CONNECTICUT—Hospitals, 21, Internships, 185										
Bridgeport Hospital +[1, 3] 267 Grant St, Bridgeport 8	NPAssn	389	13 365	None	42	12	No	100	8 Rotating General 4 Mixed Med Surg	07911 07924
St Vincent's Hospital +[1, 3] 2820 Main St Bridgeport 6	Church	300	15 052	Req	34	12	No	250	12 Rotating General	08011
Bristol Hospital [1-3] Newell Road, Bristol	NPAssn	160	5 937	Req	26	12		150	2 Rotating General	[illegible]
Danbury Hospital [3] 95 Locust Ave Danbury	NPAssn	167	5 918		46	12	No	200	6 Rotating General	08111
Greenwich Hospital +[1, 3] Lake Ave and William St Greenwich	NPAssn	193	6,498	Req	67	12	No	100	6 Rotating General	08211
Hartford Hospital +[1, 3, 4] 80 Seymour St Hartford 15	NPAssn	810	38,221	Req	60	24	No	50	18 Rotating General	08311
I I McCook Memorial Hospital +[1, 3] 2 Holcomb St Hartford 5	City	273	4,204	Req	46	12	No	120	6 Rotating General	08411
Mount Sinai Hospital [3] 600 Blue Hills Ave Hartford 12	NPAssn	115	5,246	Req	29	12	No	200	4 Rotating General	[illegible]
St Francis Hospital +[1, 3, 4] 114 Woodland St Hartford 5	Church	570	20 608	Req	37	12	No	75	13 Rotating General	08511
Manchester Memorial Hospital [1, 3] 71 Haynes St, Manchester	NPAssn	160	6,643	Req	39	12	104	275	4 Rotating General	85511
Meriden Hospital +[1-3] 181 Cook Ave Meriden	NPAssn	216	8,040	None	31	12	No	150	2 Rotating General	08611
Middlesex Hospital + 28 Crescent St, Middletown	NPAssn	171	7,206	Req	35	12	No	150	4 Rotating General	08711
New Britain General Hospital +[1, 3] 92 Grand St, New Britain	NPAssn	288	11 036	Req	53	12	No	110	7 Rotating General	08811
Grace New Haven Community Hospital +[1-3-4]-X18 789 Howard Ave, New Haven 4	NPAssn	716	18,749	Req	59	12	No	25	14 Straight Medicine 12 Straight Surgery 7 Straight Pediatrics 6 Straight Pathology	08932 08933 08934 08935
Hospital of St Raphael +[3] 1442 Chapel St New Haven 11	Church	370	15,429	Req	31	12	No	75	12 Rotating General	09011
Lawrence and Memorial Associated Hospital +[1, 3] 365 Montauk Ave New London	NPAssn	242	9,038	Req	50	12	No	200	4 Rotating General	09111
Norwalk Hospital +[1, 3] 24 Stevens St, Norwalk	NPAssn	245	9,381	Req	39	12	No	125	6 Rotating General	09311
William W Backus Hospital [3] 326 Washington St, Norwich	NPAssn	145	6,787	Req	23	12	No	150	8 Rotating General	09411
Stamford Hospital +[1, 3] 190 W Broad St Stamford	NPAssn	276	7,470	Req	65	12	No	100	10 Rotating General	09511
St Mary's Hospital +[1, 3, 4] 56 Franklin St Waterbury 6	Church	336	14,066	Req	39	12	No	200	7 Rotating General	09611
Waterbury Hospital +[1, 4] 64 Robbins St, Waterbury 8	NPAssn	337	12,851	Req	56	12	No	200	8 Rotating General	09711
DELAWARE—Hospitals, 3, Internships, 28										
Delaware Hospital +[1, 3, 4] 501 W 14th St Wilmington 1	NPAssn	377	12,781	None	65	12	No	160	14 Rotating General	09811
Memorial Hospital +[1, 3]-X65 1501 Van Buren St, Wilmington 6	NPAssn	228	6,771	Req	52	12	No	160	8 Rotating General	09911
Wilmington General Hospital +[1, 3] Chestnut at Broom St, Wilmington 5	NPAssn	187	6,006	Req	47	12	No	160	6 Rotating General	10011
DISTRICT OF COLUMBIA—Hospitals, 8 Internships, 135										
Central Dispensary and Emergency Hosp +[1-3-4] 1711 New York Ave, N W, Washington 6	NPAssn	300	8,004	Req	55	12	171	200	18 Rotating General	10111

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DISTRICT OF COLUMBIA—Continued										
District of Columbia General Hosp +1 2 4-X19-20-x21 19th and Massachusetts Ave S E Washington 3	City	1,252	20,546	Req	55	12	293	50	50 Rotating General	79911
Doctors Hospital +1 2 1815 Eye St , N W Washington 6	Corp	237	10 162	Req	62	12	293	150	6 Rotating General	79711
Garfield Memorial Hospital +1-3 10th and Florida Ave N W Washington 1	NPAssn	300	13 012	Req	59	12	157	200	12 Rotating General	80011
George Washington University Hospital +1 2-X20 901 23d St N W Washington 7	NPAssn	410	14,301	Req	78	12	166	105	13 Rotating (Med Major) 11 Rotating (Surg Maj) 1 Rotating (Path Maj)	80212 80213 80286
Providence Hospital +1 3 4 x19 2d and D Sts S E Washington 3	Church	270	10 704	Req	50	12		175	12 Rotating General	80311
Sibley Memorial Hospital +1-3 1150 N Capitol, Washington 2	Church	253	11,157	Req	43	12		100	9 Rotating General	80511
Washington Sanitarium and Hospital 1 3 7600 Carroll Ave Washington 12	Church	248	7,600	Req	39	12	171	136	8 Rotating General	25411
FLORIDA—Hospitals 11 Internships 134										
Duval Medical Center +1-3 2000 Jefferson St Jacksonville 8	County	335	7,873	Req	38	12	No	125	14 Rotating General	10111
St Luke s Hospital + 9th St and Boulevard Jacksonville 8	NPAssn	210	9 753	Req	22	12	No	200	4 Rotating General	10211
St Vincent s Hospital +1-3 Barrs and St John s Ave Jacksonville 4	Church	251	13 707	Req	51	12	No	125	18 Rotating General	10311
Jackson Memorial Hospital +1 1000 N W 17th St Miami 36	County	844	25,251	Req	48	12	211	50	42 Rotating General	10411
Mount Sinai Hospital +1-3 4300 Alton Rd Miami Beach 40	NPAssn	258	7,893	Req	37	12	123	150	12 Rotating General	10511
St Francis Hospital +1-3 63d St and Allison Rd Miami Beach 41	Church	200	7,204	Req	37	12	No	100	5 Rotating General	10611
Orange Memorial Hospital +1 3 1416 S Kuhl Ave Orlando	NPAssn	300	12,154	Req	43	12	No	125	12 Rotating General	10711
Sacred Heart Hospital +1 3 1010 N 12th Ave Pensacola	NPAssn	175	5 603	Req	36	12	100	150	3 Rotating General	10811
Mound Park Hospital +1 6th St and 7th Ave S St Petersburg 5	City	279	7,805	Req	42	12	192	250	8 Rotating General	91111
Tampa Municipal Hospital +1 3 Davis Islands Tampa 6	City	300	11,841	Req	38	12	No	100	12 Rotating General	10911
St Mary s Hospital 1-3 900 49th St West Palm Beach	Church	150	4,281	Req	35	12	123	100	4 Rotating General	91411
GEORGIA—Hospitals 11 Internships 164										
Athens General Hospital 797 Cobb St Athens	County	104	4,346	Req	25	12	No	275	4 Rotating General	85611
St Mary s Hospital 1 860 N Milledge Ave Athens	State	100	4 174	Req	34	12	103	150	3 Rotating General	11011
Crawford W Long Memorial Hospital +1-3-x22 85 Linden Ave N E Atlanta 3	Church	491	22,365	Req	37	12	129	100	15 Rotating General	11111
Georgia Baptist Hospital +1-3 300 Boulevard N E Atlanta	Church	461	18 043	Req	42	12	No	265	20 Rotating General	11211
Grady Memorial Hospital +1 3 4 X22 36 Butler St S E Atlanta 3	County	610	15,989	Req	68	12	No	10	12 Rotating General 6 16 Straight Medicine 16 Straight Surgery 4 Straight Pediatrics	11311 11332 11333 11334
Piedmont Hospital +1-x22 551 Capitol Ave Atlanta	NPAssn	132	6,532	None	46	12	129	150	8 Rotating General	11411
St Joseph s Infirmary +1 3 272 Courtland St N E Atlanta 3	Church	150	8 728	Req	52	12	No	150	6 Rotating General	11511
University Hospital +1 2-X23 University Pl. Augusta	City	470	17,644	Req	32	12	No	150	16 Rotating General	11611
Columbus City Hospital + 19th St and 8th Ave Columbus	City	228	10 448	Req	36	12	No	200	10 Rotating General	11811
Emory University Hospital +1 2-X22 Emory University	NPAssn	304	10,954	Req	52	12	No	165	6 Straight Medicine 6 Straight Surgery 1 Straight Pathology	11932 11933 11936
Macon Hospital +1 3 840 Pine St Macon	CyCo	282	13,886	Req	44	12	No	200	18 Rotating General	12011
ILLINOIS—Hospitals 60 Internships 804										
MacNeal Memorial Hospital +1-3 3249 S Oak Park Ave Berwyn	NPAssn	165	9 456	Req	39	12	No	150	10 Rotating General	12111
Alexian Brothers Hospital + 1200 W Belden Ave Chicago 14	Church	243	5,822	None	41	12	124	100	8 Rotating General	12211
American Hospital +1-3 850 W Irving Park Rd Chicago 13	NPAssn	152	5,277	Req	53	12	No	25	5 Rotating General	12311
Augustana Hospital +1-3 411 W Dickens Ave Chicago 14	Church	320	8 730	Req	51	12	No	100	10 Rotating General	12411
Chicago Wesley Memorial Hospital +1 2-X25 250 E Superior St Chicago 11	Church	572	16,140	None	67	12	231	25	32 Rotating General	12511
Columbus Hospital +2-x25 2520 N Lakeview Ave Chicago 14	Church	450	11,175	Req	60	12	158	75	20 Rotating General	12611
Cook County Hospital +1 4 X24-25-26-28 1825 W Harrison St Chicago 12	County	3 400	71,416	Req	30	12	No	25	123 Rotating General	12711
Edgewater Hospital 1 3 5700 N Ashland Chicago 26	NPAssn	156	8 490	Req	41	12	No	100	15 Rotating General	12811
Englewood Hospital +3 6001 S Green St Chicago 21	County	154	6 444	None	47	12	No	150	5 Rotating General	12911
Evangelical Hospital 1 3 5421 S Morgan St Chicago 9	Church	195	8,320	None	31	12	No	150	7 Rotating General	13011
Garfield Park Community Hospital 3 3813-25 W Washington Blvd Chicago 24	NPAssn	150	5,814	None	30	12	No	175	7 Rotating General	13111
Grant Hospital +1 2-X28 551 Grant Pl. Chicago 14	NPAssn	236	9,021	Req	55	12	213	100	9 Rotating General	13211
Henrotin Hospital +1-3 939 N La Salle Chicago 10	NPAssn	100	3,395		41		130	125	4 Rotating General	13311
Holy Cross Hospital 3 2700 W 69th St Chicago 29	Church	143	6 097	Req	55	12	No	150	6 Rotating General	13411
Hospital of St Anthony de Padua +1 2875 W 19th St Chicago 23	Church	217	7,960	Req	25	12	No	200	9 Rotating General	13511
Illinois Central Hospital +1 2-X28 5800 Stony Island Ave Chicago 37	NPAssn	300	6 725	None	57	12	152		14 Rotating General	13711

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ILLINOIS—Continued										
Illinois Masonic Hospital +1 3 836 Wellington Avenue, Chicago 14	NPAssn	875	12,020	Req	49	12	No	100	12 Rotating General	13711
Jackson Park Hospital 1 3 7531 Stony Island Ave, Chicago 49	Corp	140	5,171	None	37	12	No	150	6 Rotating General	13811
Loretto Hospital +1-3-X26 645 S Central Ave, Chicago 44	Church	150	5,401	Req	54	12	152	150	6 Rotating General	13911
Lutheran Deaconess Hospital +3 1138 N Leavitt St, Chicago 22	Church	186	7,469	Req	35	12	No	150	5 Rotating General	14011
Mercy Hospital +1 3-X26 2537 S Prairie Ave, Chicago 16	Church	325	9,305	None	45	12	No	100	15 Rotating General	14111
Michael Reese Hospital +1 3 X24-25 29th St and Ellis Ave, Chicago 16	NPAssn	734	19,598	Req	64	12	203	50	37 Rotating General 2 Straight Medicine 2 Straight Surgery 2 Straight Pediatrics 1 Straight Pathology	14211 14232 14233 14234 14235
Mother Cabrini Memorial Hospital 3 1200 W Cabrini St, Chicago 7	Church	150	4,804	Req	27	12	No	100	5 Rotating General	14311
Mount Sinai Hospital +1 3-X24 2750 W 15th Pl, Chicago 8	NPAssn	314	11,115	None	40	12	No	50	12 Rotating General	14411
Norwegian American Hospital +1 3 1044 N Francisco Ave, Chicago 22	NPAssn	172	6,085	Req	35	12	No	200	2 Straight Surgery 8 Rotating General	14533 14511
Passavant Memorial Hospital +1 3-X25 303 E Superior St, Chicago 11	NPAssn	265	8,608	None	63	12	228	25	12 Rotating General	14611
Presbyterian Hospital +1 3-X28 1753 W Congress St, Chicago 12	NPAssn	431	12,209	Req	63	12	No	100	22 Rotating General	14711
Provident Hospital +1 3 426 E 51st St, Chicago 15	NPAssn	205	7,049	Req	34	12	No	125	9 Rotating General 1 Straight Surgery	14811 14833
Ravenswood Hospital +1 3 1931 Wilson Ave, Chicago 40	NPAssn	207	7,700	Req	67	12	No	70	9 Rotating General 1 Rotating (Med Major) 1 Rotating (Surg Maj) 2 Straight Ob Gyn	14911 14912 14913 14935
Roseland Community Hospital 3 45 West 111th St, Chicago 28	NPAssn	101	4,072	Req	25	12		175	4 Rotating General	92411
St Anne's Hospital +1 3 4950 Thomas St, Chicago 51	NPAssn	304	12,490	None	27	12	No	150	12 Rotating General	15211
St Bernard's Hospital +1 3 6337 S Harvard Ave, Chicago 21	Church	181	6,029	Req	30	12	No	150	8 Rotating General	15311
St Elizabeth Hospital +3 1431 N Claremont Ave, Chicago 22	Church	309	10,641	None	36	12	No	150	8 Rotating General	15411
St Joseph Hospital +1-3-x26 2100 N Burling, Chicago 14	NPAssn	197	6,117	Req	48	12	No	100	8 Rotating General	15511
St Luke's Hospital +1-3-X25-x28 1439 S Michigan Ave, Chicago 5	NPAssn	564	14,689	Req	68	12	No	25	32 Rotating General	15611
St Mary of Nazareth Hospital + 1120 N Leavitt St, Chicago 22	Church	261	9,830	Req	37	12	No	200	10 Rotating General	15711
South Chicago Community Hospital 1 3 2320 E 93d St, Chicago 17	NPAssn	250	9,890	Reg	30	12	No	150	10 Rotating General	15811
South Shore Hospital +1 3 8015 S Luella Ave, Chicago	NPAssn	154	6,897	Req	32	12	253	200	7 Rotating General	92511
Swedish Covenant Hospital +1-3 5145 N California, Chicago 25	Church	209	6,457		38	12	No	150	8 Rotating General	15911
University of Chicago Clinics +1-3-4-X27 950 E 59th St, Chicago 37	NPAssn	683	15,520	Req	78	12	No	125	36 Rotating General 5 Straight Pediatrics	16011 16034
University of Illinois Research and Educational Hospitals +1-4-X28 1819 W Polk St, Chicago 12	State	447	7,239	Req	88	12	No	25	30 Rotating General 2 Straight Medicine 2 Straight Surgery 2 Straight Pediatrics	15011 15032 15033 15034
Walther Memorial Hospital +1-3 1116 N Kedzie Ave, Chicago 51	Church	175	7,112	Req	31	12	No	100	6 Rotating General	16111
Women and Children's Hospital +1-3 1600 W Maypole Ave, Chicago 12	NPAssn	115	3,509	Req	78	12	No	75	8 Rotating General	16311
Woodlawn Hospital +1 3 6060 Drexel Ave, Chicago 37	NPAssn	150	4,057	Req	70	12	No	150	6 Rotating General	16411
Decatur and Macon County Hospital +1 2300 N Edward, Decatur	NPAssn	248	8,899	Req	20	12	117	225	4 Rotating General	85711
St Mary's Hospital 1 3 129 N Eighth, East St Louis	NPAssn	290	9,546	None	26	12	No	150	10 Rotating General	16511
Memorial Hospital 1 3 Avon and Schiller Sts, Elmhurst	NPAssn	186	9,816	Req	46	12	No	200	4 Rotating General 1 Rotating (Med Major) 1 Rotating (Surg Maj) 1 Rotating (Ob Gyn Major) 1 Rotating (Ped Major)	16611 16612 16613 16615 16614
Evanston Hospital +1-X25 2650 Ridge Ave, Evanston	NPAssn	325	10,883	Req	77	12	218	25	18 Rotating General	16711
St Francis Hospital +1 3 355 Ridge Ave, Evanston	Church	383	14,339	Req	61	12	No	150	16 Rotating General	16811
Little Company of Mary Hospital +1-3 95th and California Ave, Evergreen Park 42	Church	371	18,187	Req	26	12	No	150	16 Rotating General	16911
St Joseph's Hospital +1-3 372 N Broadway, Joliet	Church	300	11,082	Req	31	12	No	100	6 Rotating General	17011
Moline Public Hospital 1 3 622 5th Ave, Moline	City	202	8,599	None	21	12	No	100	3 Rotating General	17111
Oak Park Hospital 1 3 525 Wisconsin Ave, Oak Park	Church	244	6,801	None	20	12	No	150	6 Rotating General	17211
West Suburban Hospital +-x28 518 N Austin Blvd, Oak Park	NPAssn	320	12,730	Req	45	12	No	200	12 Rotating General	17311
Methodist Hospital of Central Illinois +1 3 221 N Glen Oak Ave, Peoria	Church	320	12,124	Req	43	12	No	125	12 Rotating General	17411
St Francis Hospital +1 530 N Glen Oak Ave, Peoria 4	Church	572	17,387	Req	38	12	No	200	18 Rotating General	17511
Rockford Memorial Hospital 1 3 507 Chestnut St, Rockford	NPAssn	129	5,039	Req	62	12	No	150	6 Rotating General	17611
St Anthony Hospital +1 3 1401 E State St, Rockford	Church	240	8,892	Req	51	12	No	150	5 Rotating General	17711
Swedish American Hospital +1 3 1316 Charles St, Rockford	NPAssn	200	7,889	Req	68	12	No	150	6 Rotating General	17811
Memorial Hospital 1 3 1st and Miller Sts, Springfield	NPAssn	270	7,549	None	27	12	No	175	4 Rotating General	17911

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Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
INDIANA—Hospitals, 16 Internships, 186										
St Catherine Hospital 1-3 4321 Fir St East Chicago	Church	311	10,373	Req	43	12		125	7 Rotating General	18111
Protestant Deaconess Hospital +1 600-700 Mary St Evansville 10	Church	200	15 435	Req	27	12		225	4 Rotating General	18211
Lutheran Hospital 3024 Fairfield Fort Wayne 6	NPAssn	210	8 145	Req	34	12		250	4 Rotating General	18311
St Joseph Hospital +1 730 W Berry St Fort Wayne 2	* Church	270	9 780	None	30	12			8 Rotating General	90411
Methodist Hospital +1 1600 W 6th Ave Gary	Church	242	11,509	Req	38	12		150	8 Rotating General	86011
St Mary s Mercy Hospital 540 Tyler St Gary	Church	255	9,896	None	28	12		150	8 Rotating General	18411
St Margaret Hospital + 25 Douglas St Hammond	Church	350	13 439	None	24	12		300	10 Rotating General	18511
Indianapolis General Hospital +1 4-X29 960 Locke St Indianapolis 7	CyCo	689	10,931	Req	39	12		90	42 Rotating General	18611
Indiana University Medical Center +1 4-X29 1040-1232 W Michigan St Indianapolis 7	State	496	14,874	None	83	12	153	115	26 Rotating General 4 Straight Surgery	18711 18733
Methodist Hospital +1 1604 N Capitol Ave Indianapolis 7	Church	624	25 672	Req	32	12		210	20 Rotating General	18811
St Vincent s Hospital +1 120 W Fall Creek Blvd. Indianapolis 7	Church	300	12 471	Req	53	12		210	11 Rotating General	18911
St Elizabeth Hospital +1 1021 N 14th St Lafayette	Church	305	9 453	Req	31	12		150	10 Rotating General	19011
St Joseph Hospital 1 215 W Fourth St Mishawaka	Church	120	5,210	Req	41	12		200	3 Rotating General	19111
Ball Memorial Hospital +1 2401 University Ave Muncie	NPAssn	248	10,293	None	36	12		150	6 Rotating General	19211
Memorial Hospital +1 604 N Main St South Bend 1	NPAssn	218	10 118	Req	47	12		150	7 Rotating General	19311
St Joseph s Hospital 1 401 N Notre Dame Ave South Bend 17	Church	171	7,523	Req	32	12	295	125	6 Rotating General	
IOWA—Hospitals 11 Internships 90										
Mercy Hospital 1 3 835 Sixth Ave S E Cedar Rapids	Church	206	7 635	Req	36	12		200	4 Rotating General	19611
St Luke s Methodist Hospital +1-3 1026 A Ave N E Cedar Rapids	Church	295	11,283	Req	60	12		125	6 Rotating General	19711
Mercy Hospital 1-x45 420 E Washington Ave Council Bluffs	Church	165	6,857	Req	30	12	101	150	6 Rotating General	19811
Mercy Hospital 1-3 1326 W Lombard St Davenport	Church	235	9,938	Req	27	12		150	6 Rotating General	85911
Broadlawns Polk County Hospital +1 18th and Hickman Rd Des Moines 14	County	244	5,184	Req	43	12		180	12 Rotating General	19911
Iowa Lutheran Hospital 1-3 716 Parnell Ave Des Moines 16	Church	200	7,504	Req	28	12		150	8 Rotating General	20011
Iowa Methodist Hospital +1 3 1200 Pleasant St Des Moines	Church	394	15,095	Req	42	12		150	10 Rotating General	20111
Mercy Hospital +1 5th and Ascension Sts Des Moines 14	Church	190	9,945	Req	60	12	229	175	8 Rotating General	20211
Mercy Hospital +1 214 N Van Buren Iowa City	Church	190	6,137	Req	28	12		150	4 Rotating General	86111
University Hospitals +1 2 4-X30 Newton Rd Iowa City	State	890	18,355	Req	62	12		60	20 Rotating General	20311
St. Joseph Mercy Hospital 2101 Court St Sioux City 5	Church	450	10,353	Req	25	12		175	6 Rotating General	20411
KANSAS—Hospitals 7 Internships 85										
Bethany Hospital 1-3 12th and Reynolds Ave Kansas City 7	Church	150	49,548	Req	46	12		150	8 Rotating General	20511
Providence Hospital 1 18th and Barnett Kansas City 2	Church	150	7,217	Req	34	12	110	215	6 Rotating General	20611
St. Margaret Hospital +3 8th St and Vermont Ave Kansas City 8	Church	194	6,119	Req	55	12		150	6 Rotating General	20711
University of Kansas Medical Center +1-4-X31 39th and Rainbow Blvd Kansas City	State	468	11,154		69	12		40	22 Rotating General 4 Mixed (Med Surg Ped)	20811 20823
St Francis Hospital +1 3 928 N Emporia Ave Wichita 5	Church	494	21,531	Req	54	12	150	225	20 Rotating General	20911
Wesley Hospital +1-3 550 N Hillside Wichita 6	Church	390	14,945	Req	88	12	150	100	12 Rotating General	21011
Wichita St Joseph Hospital 1-3 3400 Grand Ave Wichita 17	Church	255	7,525	Req	30	12	150	150	7 Rotating General	21111
KENTUCKY—Hospitals 10 Internships 107										
St Elizabeth Hospital 1 3 21st and Eastern Ave Covington	Church	264	15,216	Req	32	12		200	12 Rotating General	21211
William Booth Memorial Hospital 1 3 323 E 2d Street Covington	Church	128	5,317	Req	15	12		200	6 Mixed (Med Ob -Gyn Surg)	21322
Good Samaritan Hospital +1 310 S Limestone Lexington	Church	300	11 760	Req	33	12		150	12 Rotating General	21411
St Joseph Hospital +1-3 544 W 2d St Lexington	Church	318	11,818	Req	43	12		200	8 Rotating General	21511
Kentucky Baptist Hospital +1 3 810 Barret Ave Louisville 4	Church	345	13 617	None	30	12	131	200	10 Rotating General	21611
Louisville General Hospital +1 3 4-X32 323 E Chestnut St Louisville	CyCo	372	10,272	Req	38	12	215	70	20 Rotating General 4 Straight Medicine 5 Straight Pediatrics	21711 21732 21734
Norton Memorial Infirmary +1-3 231 W Oak St Louisville 3	Church	280	11 023	None	34	12		200	6 Rotating General	21811
St Anthony Hospital 1-3 1313 St Anthony Pl Louisville 4	Church	220	9,167		28	12		200	5 Rotating General	21911
St Joseph Infirmary +1-3 735 Eastern Parkway Louisville 8	Church	448	16,862	Req	41	12	216	150	15 Rotating General	22011
SS Mary and Elizabeth Hospital 3 1507 S 10th St Louisville 10	Church	175	11 727	Req	25	12	105	150	4 Rotating General	22111
LOUISIANA—Hospitals 9 Internships 236										
Baton Rouge General Hospital +1 3600 Florida St Baton Rouge 9	Church	250	13,262	Req	30	12		100	5 Rotating General	22311
Charity Hospital of Louisiana +1 4-X33-34 1532 Tulane Ave New Orleans 12	State	2 763	54 693	Req	65	12		75	130 Rotating General	22411

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Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
LOUISIANA—Continued										
Hotel Dieu Sisters Hospital $^{+1\ 5}$ 2004 Tulane Ave New Orleans 16	Church	288	11,267	Req	42	12		150	12 Rotating General	22511
Mercy Hospital Soniat Memorial 301 N Jefferson Davis Pkwy, New Orleans 19	Church	125	6,354	Req	22	12		150	8 Rotating General	22611
Southern Baptist Hospital $^{+1\ 5}$ 2700 Napoleon Ave New Orleans 15	Church	500	19 482	Req	45	12		105	20 Rotating General	22811
Touro Infirmary $^{+1-5-x34}$ 3516 Prytania St New Orleans 15	NPAssn	453	18 202	Req	44	12		75	20 Rotating General	22911
Confederate Memorial Medical Center $^{+1}$ 1210 Texas Ave Shreveport	State	1 000	16,741	Req	34	12		25	36 Rotating General	23211
North Louisiana Sanitarium ^{1} 1130 Louisiana Ave, Shreveport	Corp	130	4,589	Req	53	12	106	225	8 Rotating General	23011
T E Schumpert Memorial Hospital ^{1} 911 Margaret Pl Shreveport 15	NPAssn	107	6,468	None	39	12		250	2 Rotating (Surg Major)	23113
MAINE—Hospitals, 4, Internships, 27										
Eastern Maine General Hospital $^{+1}$ 489 State St Bangor	NPAssn	291	9 490	Req	45	12		75	8 Rotating General	23311
Central Maine General Hospital $^{+1\ 5}$ 300 Main St Lewiston	NPAssn	221	7 143	Req	41	12		100	4 Rotating General	23411
St Mary's General Hospital $^{1\ 5}$ 318 Sabattus St Lewiston	Church	150	4 395	Req	26	12		100	8 Rotating General	23511
Maine General Hospital $^{+1}$ 22 Arsenal St, Portland 4	NPAssn	311	8 928	Req	38	12		75	12 Rotating General	23611
MARYLAND—Hospitals, 17, Internships, 258										
Baltimore City Hospitals $^{+1\ 5\ 4-X35-36}$ 4940 Eastern Ave, Baltimore 24	City	1,255	8 285	Req	40	12		50	12 Rotating General 10 Straight Medicine 6 Straight Pediatrics 2 Straight Pathology	23711 23732 23734 23736
Bon Secours Hospital $^{+2}$ 2025 W Fayette St Baltimore 23	Church	170	6 714	Req	28	12		225	5 Rotating General	23811
Church Home and Hospital $^{+1\ 5}$ Broadway and Fairmount Ave Baltimore 31	Church	184	5 831	Req	40	12	159	175	8 Rotating General 1 Straight Medicine	23911 23932
*Franklin Square Hospital $^{+1\ 5}$ 110 N Calhoun St Baltimore 23	NPAssn	160	4 728	Req	25	12	160	150	10 Rotating General	
Hospital for Women $^{+1\ 5}$ Lafayette Ave and John St, Baltimore 17	NPAssn	141	6,521	Req	43	12	161	200	8 Mixed (Med -Ob Gyn)	24109
Johns Hopkins Hospital $^{1\ 3}$ X35 601 North Broadway Baltimore 5	NPAssn	996	21 676	Req	60	12		20	14 Straight Medicine 10 Straight Medicine Private Wards 19 Straight Surgery 12 Straight Pediatrics 12 Straight Ob Gyn 1 Straight Pathology	24232 24238 24233 24234 24235 24236
Lutheran Hospital $^{+1-3-4}$ 730 Ashburton St Baltimore 16	Church	193	6 751	Req	48	12	159	200	7 Rotating General	24811
Maryland General Hospital $^{+1\ 5}$ Linden Ave and Madison St, Baltimore 1	Church	227	6 951	Req	28	12		200	8 Rotating General	24111
Mercy Hospital $^{+1\ 5\ 4-X36}$ Calvert and Saratoga Sts Baltimore 2	Church	301	10 492	Req	42	12		225	16 Rotating General	24511
St Agnes Hospital $^{+1\ 5}$ Wilkens and Caton Aves Baltimore 29	Church	210	7 892	Req	29	12	161	100	9 Rotating General	24711
St Joseph's Hospital $^{+1\ 5\ 4}$ 1100 N Caroline St, Baltimore 13	Church	250	7,366	Req	28	12		200	8 Rotating General	24811
Sinai Hospital $^{+1-4-x35}$ 1711 E Monument St Baltimore 5	NPAssn	313	12 024	Req	50	12		100	10 Rotating General 1 Straight Medicine 1 Straight Surgery 1 Straight Pediatrics	24911 24932 24933 24934
South Baltimore General Hospital $^{+1\ 5}$ 1213 Light St Baltimore 30	NPAssn	181	5 255	Req	32	12		140	8 Rotating General	25011
Union Memorial Hospital $^{+1\ 5}$ 33d and Calvert Sts, Baltimore 18	NPAssn	342	9 770	Req	43	12		100	16 Rotating General	25111
University Hospital $^{+1-3-4-X36}$ Redwood and Greene Sts, Baltimore 1	State	641	12,038	Req	48	12		25	32 Rotating General	25211
*Suburban Hospital $^{1-5}$ 8600 Georgetown Rd, Bethesda 14	NPAssn	125	5 688	Req	49	12		200	2 Rotating General	
Prince George's General Hospital $^{1-5-x19}$ Cheverly	County	234	9 089	Req	38	12		100	8 Rotating General	90511
MASSACHUSETTS—Hospitals, 35, Internships, 370										
Beverly Hospital $^{+1\ 5}$ Heather and Herrick Sts, Beverly	NPAssn	186	5 808	Req	61	12		50	6 Rotating General	25511
Beth Israel Hospital $^{+1-5\ 4-X38-39}$ 330 Brookline Ave, Boston 15	NPAssn	304	10 098	Req	52	12	112	25	8 Straight Medicine 5 Straight Surgery	25632 25633
Boston City Hospital $^{+1-5\ 4-X37-38-39}$ 818 Harrison Ave, Boston 18 Chrm Com Internship Exams	City I and III II and IV V and VI I III V	2,300 Medical Tufts Medical Harvard Medical Boston Univ Surgical Tufts Surgical Boston Univ Surgical Straight Specialties Boston Univ Pathology	35,241	None	39	12		92	16 Straight Medicine 16 Straight Medicine 16 Straight Medicine 8 Straight Surgery 8 Straight Surgery 8 Straight Surgery 4 Straight Pediatrics 5 Straight Pathology	25793 25791 25795 25706 25708 25701 25704 25736
Carney Hospital $^{+1\ 5}$ x39 1050 Old Harbor St, Boston 27	Church	285	5,616	Req	33	12	218	100	12 Rotating General	25811
Children's Medical Center $^{+1\ 5\ 4-X38}$ 300 Longwood Ave Boston 15	NPAssn	320	10,168	Req	78	12	162		4 Straight Pediatrics 4 Straight Pathology	25931
Faulkner Hospital $^{+1\ 5}$ 1153 Centre St Boston 30	NPAssn	148	4,241		53	12		50	2 Mixed (Med Surg Ob Gyn)	26022
Massachusetts General Hospital $^{+1-4-X38}$ Fruit St, Boston 14	NPAssn	940	21,313	Req	63	12	288		12 Straight Medicine 8 Straight Surgery 6 Straight Pediatrics	26132 26133 26134
Massachusetts Memorial Hospitals $^{+1\ 5-4-X37}$ 750 Harrison Ave, Boston 18	NPAssn	300	7,378	Req	54	12	221	25	10 Straight Medicine 6 Straight Surgery 1 Straight Pathology	26232 26233 26234
New England Center Hospital $^{+1\ 5}$ X39 Harrison Ave and Bennet St, Boston 11	NPAssn	180	6,053	Req	68	12	292	50	10 Straight Medicine 8 Straight Surgery	26332 26333
New England Hospital $^{+1-4-x39}$ Dimock St and Columbus Ave, Boston 19	NPAssn	125	4 282	Req	21	12	254	35	3 Rotating General	26411

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MASSACHUSETTS—Continued										
Peter Bent Brigham Hospital +1 3-4X38 721 Huntington Ave Boston 15	NPAssn	250	5 918	Req	71	12	278	25	12 Straight Medicine 6 Straight Surgery 2 Straight Pathology	26532 26533 26536
St Elizabeth s Hospital +1 3-x39 735 Cambridge St Brighton 35	Church	400	12,484	Req	35	12		95	10 Rotating General	26611
Brockton Hospital 1-3 680 Centre St Brockton 11	NPAssn	183	6,370	Req	44	12		250	4 Rotating General	26711
Cambridge City Hospital +1-3-x39 1493 Cambridge St Cambridge 39	City	270	6 120	Req	46	12		100	10 Rotating General	26811
Mount Auburn Hospital +1 3 330 Mt Auburn St, Cambridge 38	NPAssn	220	7 078	Req	46	12	234	100	6 Rotating General	26911
Truesdale Hospital +1-3 1820 Highland Ave Fall River	NPAssn	152	4,689	Req	45	12	219	100	9 Rotating General	27011
Union Hospital 1 3 533 Prospect St Fall River	NPAssn	170	6 481	Req	36	12		100	4 Rotating General	86411
Holyoke Hospital +1 3 4 575 Beech St. Holyoke	NPAssn	156	5 194	Req	35	12		100	1 Rotating General 1 Rotating (Med Major) 1 Rotating (Surg Maj) 1 Straight Pathology	27311 27312 27313 27336
Lawrence General Hospital +1 3 1 Garden St Lawrence	NPAssn	157	6 028	Req	64	12		100	4 Rotating General	27411
Lowell General Hospital +1-3 295 Varnum Ave Lowell	NPAssn	210	6 055	Req	43	12		150	2 Rotating General	27511
St. John s Hospital 3 14 Bartlett St, Lowell	Church	164	6 058	Req	44	12		100	4 Rotating General	27611
St. Joseph s Hospital 3 830 Merrimack St Lowell	Church	182	6,373	Req	24	12		125	3 Rotating General	27711
Lynn Hospital +1-3 212 Boston St Lynn	NPAssn	248	9,879	Req	37	24		100	6 Rotating General	27811
St. Luke s Hospital +1 3 101 Page St New Bedford	NPAssn	346	9 475	Req	25	12		100	6 Rotating General	27911
Newton Wellesley Hospital +1 3 2014 Washington St Newton Lower Falls 62	NPAssn	235	7,557	Req	37	12		120	6 Rotating General	28011
St. Luke s Hospital 1 3 379 East St Pittsfield	Church	150	4 790	Req	42	12		100	2 Rotating General	28211
Quincy City Hospital +1-3 114 Whitwell St Quincy 69	City	251	9 439	Req	47	12		138	12 Rotating General	28311
Salem Hospital +1 3 81 Highland Ave. Salem	NPAssn	246	7,083	Req	43	12		150	6 Rotating General	28411
Mercy Hospital 1-3 233 Carew St Springfield 4	State	340	11,523	Req	27	12		150	6 Rotating General	28511
Springfield Hospital +1 3 759 Chestnut St Springfield 7	NPAssn	285	8 039	Req	38	12	163	75	8 Rotating General	28611
Wesson Memorial Hospital 1-3 140 High St Springfield 5	NPAssn	142	5,651	Req	35	12	220	100	4 Rotating General	28711
Waltham Hospital 1-x39 Hope Ave Waltham 54	NPAssn	106	5 722	Req	50	12		125	4 Rotating General	28811
Memorial Hospital +1 3 4 119 Belmont St Worcester 5	NPAssn	269	9,806	Req	52	12		100	8 Rotating General	28911
St Vincent Hospital +1 3 73 Vernon St Worcester 10	Church	242	8,158	Req	49	12		150	12 Rotating General	29011
Worcester City Hospital +3-4 71 Jaques Ave Worcester 8	City	480	14 047	Req	48	12		105	24 Rotating General	29111
MICHIGAN—Hospitals 34, Internships 552										
St. Joseph s Mercy Hospital +1 3 326 North Ingalls St Ann Arbor	Church	297	10 479	Req	52	12	263	150	12 Rotating General	29211
University Hospital +1 3 4-X40 1313 E Ann St Ann Arbor	State	952	18,574	None	66	12	172	118	8 Rotating (Med Major) 14 Rot (Surg Major) 3 Rot (Ped Major) 3 Rot (Ob-Gyn Major 2 Rot (Neurol Major) 2 Rot (Derm. Major) 3 Rot (Anes Major) 2 Rot (Path Major) 1 Rot (Otol Major) 1 Rot (Ophth Major) 10 Rot (Gen Prac Maj) 2 Rot (Phys Med & Rehab Major)	29312 29313 29314 29315 29374 29375 29377 29376 29378 29379 29381 29380
Leila Y Post Montgomery Hospital +1 9 Emmett St Battle Creek	Church	200	8,006	Req	25	12		200	4 Rotating General	29411
City of Detroit Receiving Hospital +1 3-X41 1326 St Antoine St Detroit 26	City	711	19 457	Req	54	12	164	231	66 Rotating General	29511
Detroit Memorial Hospital +1-3 1420 St Antoine St Detroit 26	NPAssn	328	11,302	Req	55	12	132	230	16 Rotating General	29611
Evangelical Deaconess Hospital +1 3 3245 E Jefferson Ave. Detroit 7	Church	185	8,842	Req	33	12	264	255	5 Rotating General	29711
Grace Hospital +1 3 4160 John R St Detroit 1	NPAssn	747	27,208	Req	45	12		200	24 Rotating General	29811
Harper Hospital +1 3 3825 Brush St Detroit 1	NPAssn	621	27,844	Req	48	12	265	200	36 Rotating General	29911
Henry Ford Hospital +1 3 2799 W Grand Blvd Detroit 2	NPAssn	650	19,521	Req	65	12		175	40 Rotating General	30011
Mount Carmel Mercy Hospital +1 3 4 6071 W Outer Drive Detroit 35	Church	538	23 080	Req	42	12		125	20 Rotating General	30211
Providence Hospital +1 3 2500 W Grand Blvd. Detroit 8	Church	372	15 049	Req	52	12		225	12 Rotating General 1 Straight Pathology	30311
St John Hospital 1 3 22101 Moross Road Detroit 36	NPAssn	272	8,375	Req	43	12		225	10 Rotating General	91511
St. Joseph Mercy Hospital +1 2200 E Grand Blvd Detroit 11	Church	250	10 607	Req	39	12	132	225	7 Rotating General	30411
Sinai Hospital 6767 W Outer Drive Detroit 35	NPAssn	218	6,595	Req	45	12	132	225	12 Rotating General	92711
Woman s Hospital +1 3 432 E Hancock Ave Detroit 1	NPAssn	246	11 042	Req	43	12	132	225	12 Rotating General	30511
Wayne County General Hosp and Infirmary +1 3 Eloise	County	3 463	7,904		33	12	165	257	36 Rotating General	30611
Hurley Hospital +1 3 Sixth Ave and Begole St Flint 2	City	423	17,923	None	63	12	230	250	26 Rotating General	30711
McLaren General Hospital +1 3 401 Ballenger Highway Flint 2	NPAssn	250	8 734	Req	57	12	107	250	6 Rotating General	80711

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Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
MICHIGAN—*Continued*										
St Joseph Hospital +1-3 302 Kensington Ave Flint 2	NPAssn	250	12,473	Req	45	12	107	250	12 Rotating General	30811
Blodgett Memorial Hospital +1 3 1840 Wealthy St S E, Grand Rapids 6	NPAssn	318	9,167	Req	70	12	107	150	12 Rotating General	30911
Butterworth Hospital +1 300 Bostwick Ave N E, Grand Rapids 2	NPAssn	356	13,018	Req	38	12		200	16 Rotating General	31011
St Mary's Hospital +1 3 200 Cherry St S E Grand Rapids 3	Church	256	10,837	Req	42	12		200	14 Rotating General	31111
Bon Secours Hospital 1 3 468 Cadieux Road Grosse Pointe 30	Church	150	4,989	None	42	12	168	225	6 Rotating General	30611
Highland Park General Hospital +1 3 [illegible] Glendale Highland Park 3	City	290	11,332	Req	30	12	183	250	14 Rotating General	31211
Borgess Hospital + 1521 Gull Road Kalamazoo 62	NPAssn	260	8,523		39	12		200	4 Rotating General	31311
Bronson Methodist Hospital +1-3 252 E Lovell St, Kalamazoo 8	Church	260	8,620	Req	55	12		240	6 Rotating General	31411
Edward W Sparrow Hospital +1 3 1215 E Michigan Ave Lansing 12	NPAssn	201	13,203	Req	56	12	194	250	10 Rotating General	31511
St Lawrence Hospital +1 3 1210 W Saginaw St, Lansing 15	Church	275	12,050	None	98	12		250	12 Rotating General	31611
Pontiac General Hospital +1 3 461 W Huron St Pontiac 18	City	198	12,178	Req	41	12		275	10 Rotating General	31811
St Joseph Mercy Hospital +1 3 900 Woodward Ave Pontiac 19	NPAssn	310	14,397	Req	39	12		250	12 Rotating General	31911
Saginaw General Hospital +1 3 1447 N Harrison St Saginaw	NPAssn	208	8,989	Req	52	12	169	275	6 Rotating General	32011
St Luke's Hospital +1 3 705 Cooper St, Saginaw	Church	144	6,673	Req	47	12	108	250	6 Rotating General	32111
St Mary's Hospital + 830 S Jefferson St Saginaw 16	Church	173	8,206	Req	45	12	170	300	6 Rotating General	32211
James Decker Munson Hospital +1 3 6th St Traverse City	NPAssn	201	5,641	None	30	12		225	4 Rotating General	32311
MINNESOTA—Hospitals, 16, Internships, 225										
St Luke's Hospital +1 915 E 1st St Duluth 5	NPAssn	355	13,252	Req	69	12	134	75	17 Rotating General	32411
St Mary's Hospital +1 3 429 E 3rd St Duluth 11	Church	285	11,198	Req	58	12	134	75	12 Rotating General	32511
Abbott Hospital 1 110 E 18th St Minneapolis 3	Church	150	7 399	Req	60	12		175	6 Rotating General	32611
Asbury Methodist Hospital +1 3 916 E 15th St Minneapolis 4	Church	165	7,496	None	57	12		155	8 Rotating General	32711
*Lutheran Deaconess Home and Hospital +1-3 1412 E 24th St, Minneapolis 4	Church	160	9,164	None	39	12		150	3 Mixed (Med Surg Ob Gyn)	
Minneapolis General Hospital +1-3 4-X42 619 S 5th St Minneapolis 15	City	674	7 256	Req	59	12		50	39 Rotating General	32811
Mount Sinai Hospital +1 3 737 E 22nd St Minneapolis 4	NPAssn	205	8,227	Req	55	12		100	10 Rotating General	32911
Northwestern Hospital +1 3 810 E 27th St Minneapolis 7	NPAssn	258	11,812	None	63	12			8 Rotating General 1 Straight Medicine 1 Straight Surgery 1 Straight Pediatrics	33011 33032 33033 33034
St Barnabas Hospital +1-3 920 S 7th St Minneapolis 4	Church	196	10 178	None	61	12		125	10 Rotating General	33111
St Mary's Hospital +1 3 2500 S Sixth St Minneapolis 6	Church	325	14,185	None	49	12	222	125	10 Rotating General	33211
Swedish Hospital +1-3 914 S 8th St, Minneapolis 4	NPAssn	420	17,379	Req	30	12		150	8 Rotating General	33311
University of Minnesota Hospitals +1-3-4-X42 412 Delaware, S E, Minneapolis 14	State	539	11,365	Req	79	12		50	12 Rotating General 6 Straight Medicine 9 Straight Surgery 9 Straight Pediatrics	33411 33432 33433 33434
Ancker Hospital +1-X42 495 Jefferson Ave St Paul 1	CyCo	850	8,131	Req	58	12		75	26 Rotating General	33511
Charles T Miller Hospital +1-4 125 W College Ave St Paul 2	NPAssn	313	11,175	Req	58	12	135	75	13 Rotating General	33711
St Joseph's Hospital +1-3 69 W Exchange St, St Paul 2	Church	283	11,583	Req	54	12		75	12 Rotating General	33811
St Luke's Hospital 1-3 287 N Smith Ave, St Paul 2	Church	140	6,250	Req	34	12	109	100	4 Rotating General	33911
MISSISSIPPI—Hospitals, 2, Internships, 16										
Mississippi Baptist Hospital +1 1190 N State St, Jackson	Church	264	13,184	None	26	12		75	12 Rotating General	34011
Mercy Hospital Street Memorial +1-3 900 Crawford St, Vicksburg	Church	142	4,152	Req	26	12	223	100	4 Rotating General	34111
MISSOURI—Hospitals, 25, Internships, 409										
St Louis County Hospital +1-3 601 S Brentwood Blvd, Clayton 5	County	200	8,453	Req	52	12		150	12 Rotating General	34211
Kansas City General Hospital No 1 +1 3-X31 24th and Cherry St, Kansas City 8	City	537	7,390	Req	54	12		75	30 Rotating General	34311
Kansas City General Hospital No 2 +1-3-4 600 E 22nd St, Kansas City 8	City	208	3,842	Req	38	12		75	8 Rotating General	34411
Menorah Hospital Medical Center +1-3-X31 4949 Rockhill Road, Kansas City 10	NPAssn	338	10 849	Req	54	12		150	12 Rotating General	34511
Research Hospital +1-3 2300 Holmes St, Kansas City 8	NPAssn	250	7,524	Req	62	12	110	150	8 Rotating General	34611
St Joseph Hospital +3 Linwood Blvd at Prospect, Kansas City 3	Church	324	14,747	Req	50	12		150	12 Rotating General	34711
St Luke's Hospital +1-3 44th and Nichols Parkway, Kansas City 11	Church	433	13,766	Req	69	12		150	16 Rotating General	34811
St Mary's Hospital +1 3 101 Memorial Hospital Drive, Kansas City 8	NPAssn	300	10,568	None	60	12	110	150	12 Rotating General	34911
Trinity Lutheran Hospital 2-3 3001 Wyandotte, Kansas City 8	Church	158	6,208	Req	49	12	110	125	7 Rotating General	35011
Missouri Methodist Hospital +1 8th and Faraon St, St Joseph	Church	300	8,238	Req	31	12		175	8 Rotating General	35111
St Joseph's Hospital 1 3 623 Powell St, St Joseph	Church	155	6,425	Req	29	12		200	3 Rotating General	35211

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Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
MISSOURI—Continued										
Barnes Hospital +1 3 X44 600 S Kingshighway Blvd St Louis 10	NPAssn	810	23 948	Req	74	12	231	10	11 Str Med (Private) 10 Str Med (Ward) 14 Straight Surgery 10 Straight Ob -Gyn 4 Straight Pathology	35331 35332 35333 35335 35336
Christian Hospital 1 3 4411 N Newstead Ave St. Louis 15	NPAssn	141	4 652	Req	28	12		250	3 Rotating General	35411
De Paul Hospital +1 3 2415 N Kingshighway St Louis 13	Church	350	14,264	Req	31	12		150	9 Rotating General	35511
Evangelical Deaconess Hospital 1 3 6150 Oakland Ave St Louis 10	Church	254	8 501	Req	35	12		150	8 Rotating General	35611
Homer G Phillips Hospital +1 3 4 X44-x74 2601 N Whittier St St Louis 13	City	694	15 916	Req	31	12		112	40 Rotating General	35711
Jewish Hospital +1 3 4 216 S Kingshighway Blvd St Louis 10	NPAssn	295	9,989	Req	49	12	136	75	15 Rotating General	35811
Lutheran Hospital 1 3 2546 Potomac St St Louis 18	Church	165	6 174	None	36	12		100	6 Mixed (Med Surg -Ob Gyn)	35922
Missouri Baptist Hospital +1 3 919 N Taylor Ave St. Louis 8	Church	450	12,394	None	36	12		125	12 Rotating General 2 Rotating (Med Major) 2 Rotating (Surg Maj)	36011 36012 36013
St. Anthony s Hospital +1 2-x43 3520 Chippewa St St Louis 18	Church	250	9 [illegible]01	None	23	12	121	100	7 Rotating General	36111
St. John s Hospital +1-2-x43 307 S Euclid Ave St Louis 10	NPAssn	362	11,675	Req	40	12		100	14 Rotating General	36211
St. Louis Children s Hospital +1 2-X44 500 S Kingshighway Blvd St Louis 10	NPAssn	136	3 761	Req	81	12	122	10	6 Straight Pediatrics	36234
St Louis City Hospital +1 2-X43-44 1515 Lafayette Ave St Louis 4	City	1 059	14 958	Req	37	12		111	16 Rotating (Med. Major) (Unit 1) 13 Straight Med (Unit 1) 8 Straight Med (Unit 2) 12 Straight Surg (Unit 1) 12 Straight Surg (Unit 2) 6 Straight Pediatrics	36312 36332 36393 36333 36396 36334
St Luke s Hospital +1 5535 Delmar Blvd St Louis 12	Church	184	6,332	Req	63	12	204	100	8 Rotating General	36411
St. Mary s Group of Hospitals +1 2-X43 1402 S Grand Blvd St Louis 4	Church	729	19 601	Req	51	12	205	60	12 Rotating General 10 Straight Medicine 8 Straight Surgery 4 Straight Pediatrics	36511 36532 36533 36534
MONTANA—Hospitals 2 Internships 8										
St James Hospital 1 3 Silver and Idaho Sts, Butte	Church	160	5,562	Req	33	12		150	4 Rotating General	36611
Montana Deaconess Hospital +1 3 1109 6th Ave. North Great Falls	Church	180	6 027	Req	78	12		100	4 Rotating General	36711
NEBRASKA—Hospitals 9, Internships 70										
Bryan Memorial Hospital 1 3 4-x46 4848 Sumner St Lincoln 6	Church	126	4,172	Req	59	12		100	4 Rotating General	36811
Lincoln General Hospital +1-x46 2315 S 17th St Lincoln 2	NPAssn	175	5 770	Req	53	12		160	4 Rotating General	36911
St. Elizabeth Hospital +1 2-x45 1145 South St Lincoln 2	Church	250	8,554	None	26	12		150	6 Rotating General	37011
Bishop Clarkson Memorial Hospital 1 2-x46 25th at Dewey Ave Omaha 5	Church	185	7 732	Req	48	12	224	100	10 Rotating General	37111
Creighton Memorial St Joseph s Hospital +1-X45 Tenth and Castelar Sts Omaha 8	NPAssn	575	14,504	Req	33	12	206	150	12 Rotating General	37211
Immanuel Hospital +1-x46 34th and Fowler St Omaha 11	Church	121	5,996	Req	47	12	195	150	6 Rotating General	37311
Nebraska Methodist Hospital +1 3 3612 Cuming St Omaha 3	Church	257	7,951	Req	63	12	255	100	8 Rotating General	37411
St. Catherine s Hospital +1 2-X45 Forrest Ave and 9th St Omaha 8	Church	200	7 627	None	22	12	187	150	8 Rotating General	37511
University of Nebraska Hospital +1-X46 42nd St and Dewey Ave Omaha 5	State	168	8,207	None	92	12	195	150	12 Rotating General	37611
NEW HAMPSHIRE—Hospitals, 1, Internships 14										
Mary Hitchcock Memorial Hospital +1-2-X47 2 Maynard St Hanover	NPAssn	300	7,965	Req	83	12		80	14 Rotating General	37711
NEW JERSEY—Hospitals 40 Internships 368										
Atlantic City Hospital +1 3 26 S Ohio Ave. Atlantic City	NPAssn	245	8,361	Req	36	12	207	150	12 Rotating General	37811
Bayonne Hospital and Dispensary +1 3 E 30th St Bayonne	NPAssn	200	6,611	Req	29	12		125	8 Rotating General	37911
Cooper Hospital +1 2-x66-68 6th and Stevens Sts Camden 3	NPAssn	398	13,287	Req	44	12		200	12 Rotating General	38011
West Jersey Hospital +1 3 Mt Ephraim and Atlantic Aves Camden 4	NPAssn	270	9 185	Req	35	12		175	9 Rotating General	38111
East Orange General Hospital 3 Munn and Central Aves East Orange	NPAssn	180	4 730	Req	25	12	173	100	4 Rotating General	38211
Alexian Brothers Hospital 3 655 Jersey St. Elizabeth 1	NPAssn	158	8,863	Req	27	12	296	100	6 Mixed (Med Surg)	
Elizabeth General Hospital and Dispensary 1 3 925 E Jersey St Elizabeth 4	NPAssn	243	9 829	Req	18	12		100	10 Rotating General	38411
St. Elizabeth Hospital 1 3 904 S Broad St Elizabeth 2	NPAssn	229	5,800	Req	27	12		100	9 Rotating General	38511
Englewood Hospital +1 3 350 Engle St Englewood	NPAssn	199	7 606	Req	27	12		100	6 Rotating General	38611
Hackensack Hospital +1 3 22 Hospital Place Hackensack	NPAssn	250	12 474	Req	40	12		100	10 Rotating General	38711
St Mary s Hospital 1 3 Willow Ave and 4th St Hoboken	Church	401	7 497	Req	30	12		100	13 Rotating General	38811
Christ Hospital 1 3 1[illegible]6 Palisade Ave Jersey City 6	Church	320	8,259	Req	27	12		100	10 Rotating General	38911
Jersey City Hospital +1 3 4 Baldwin Ave Jersey City 4	City	1 600	20 627	Req	37	12	225	41	24 Rotating General 2 Straight Medicine 2 Straight Surgery 1 Straight Pediatrics 1 Straight Pathology	39011 39032 39033 39034 39036

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NEW JERSEY—Continued										
St Francis Hospital 1-3 25 E Hamilton Place Jersey City 2	Church	215	4,788	Req	25	12	252	100	8 Rotating General	89111
Monmouth Memorial Hospital +1-3-4 3rd and Pavilion Aves Long Branch	NPAssn	278	8,415	Req	50	12		100	8 Rotating General	89211
Mountainside Hospital +1-3-4 Bay and Highland Aves, Montclair	NPAssn	312	11,863	Req	49	12		100	10 Rotating General	89311
All Souls Hospital 3 95 Mt Kemble Ave Morristown	Church	181	4,369	Req	45	12		125	8 Rotating General	90711
Morristown Memorial Hospital +1-3 100 Madison Ave Morristown	NPAssn	236	6,852	Req	60	12		110	7 Rotating General	89411
Fitkin Memorial Hospital +1-3 Corlies Ave, Neptune	NPAssn	260	6,484	Req	81	12		150	8 Rotating General	89511
Harrison S Martland Medical Center +1-3-4 116 Fairmount Ave Newark 7	City	700	14,367	Req	81	12		100	18 Rotating General	89811
Hospital of St Barnabas and for Women and Children +1-3 685 High St Newark 2	NPAssn	219	8,465	Req	43	12		75	8 Rotating General	89611
Newark Beth Israel Hospital +1-4 201 Lyons Ave Newark 8	NPAssn	365	13,085	Req	44	12		50	12 Rotating General	89711
Presbyterian Hospital +1-3 27 S 9th St, Newark 7	NPAssn	252	10,615	Req	39	12	208	100	4 Rotating General	87211
St Michael's Hospital +1-3 306 High St Newark 2	Church	422	13 372	Req	33	12		100	12 Rotating General	89911
St Peter's General Hospital +1-3 560 Easton Ave New Brunswick	Church	188	8,426	Req	43	12		135	2 Rotating General	40011
Orange Memorial Hospital +1-3 188 S Essex Ave Orange	NPAssn	338	9 350	Req	41	12		75	8 Rotating General	40111
Bergen Pines County Hospital +1-3 E Ridgewood Ave Paramus	County	684	2,312	Req	38	12	225	100	20 Rotating General	90811
Passaic General Hospital +1-3 350 Boulevard Passaic	NPAssn	231	8,861	Req	34	12		100	5 Rotating General	40211
St Mary's Hospital +1-3 211 Pennington Ave Passaic	Church	190	6 663	Req	44	12		75	4 Rotating General	40311
Barnert Memorial Hospital 1-3 680 Broadway Paterson 4	NPAssn	141	7,354	Req	80	12		100	6 Rotating General	40411
Paterson General Hospital +1-3 525 Market St Paterson 3	NPAssn	321	10,536	Req	31	12		100	8 Rotating General	40511
St Joseph Hospital +1-3 703 Main St Paterson 3	Church	442	11 228	Req	29	12		100	10 Rotating General	40611
Perth Amboy General Hospital 3 530 New Brunswick Ave, Perth Amboy	NPAssn	274	11,668	Req	26	12		100	9 Rotating General	87311
Muhlenberg Hospital +1-3-4 Park Ave and Randolph Rd, Plainfield	NPAssn	340	13 081	Req	31	12		100	10 Rotating General	40711
Overlook Hospital +3 193 Morris Ave Summit	NPAssn	258	6,060	Req	44	12		100	12 Rotating General	40811
Holy Name Hospital +1-3 718 Teaneck Rd Teaneck	NPAssn	200	7,749	Req	55	12		100	6 Rotating General 1 Straight (Ob Gyn)	40911 40935
Mercer Hospital +1-3 446 Bellevue Ave Trenton 8	NPAssn	240	9 673	Req	30	12		150	9 Rotating General	41011
St Francis Hospital +1-3 601 Hamilton Ave Trenton 9	Church	292	11,124	Req	38	12		150	10 Rotating General	41111
William McKinley Memorial Hospital 1-3 750 Brunswick Ave Trenton 8	NPAssn	150	6 094	Req	31	12		180	5 Rotating General	41211
North Hudson Hospital 1-3-4 4300 Park Ave, Weehawken	NPAssn	130	3,697	Req	23	12	226	100	6 Rotating General	41311
NEW YORK—Hospitals, 101, Internships, 1,599										
Albany Hospital +1-3-4-X48 New Scotland Ave, Albany 8	NPAssn	673	17 484	Req	65	12		60	24 Rotating General 5 Straight Medicine 6 Straight Surgery	41411 41432 41433
Memorial Hospital 1-3 161 N Pearl St, Albany	NPAssn	137	8 690	Req	26	12		150	5 Rotating General	41511
St Peter's Hospital +3 600 New Scotland Ave Albany 8	NPAssn	275	7 808	Req	35	12	282	150	9 Rotating General	41611
Binghamton City Hospital +1-3 Mitchell and Park Aves Binghamton	City	454	11,737	Req	47	12	209	125	8 Rotating General	41811
Lawrence Hospital 1-3 55 Palmer Ave Bronxville 8	NPAssn	185	5,463	Req	44	12		150	6 Rotating General	91611
Beth El Hospital +1-3 Linden Blvd and Rockaway Pkwy, Brooklyn 12	NPAssn	315	9,015	Req	30	12	196	100	15 Rotating General	41911
Brooklyn Hospital +1-3 X54 DeKalb Ave and Ashland Pl, Brooklyn 1	NPAssn	332	9,328	Req	48	12		75	16 Rotating General	42011
Coney Island Hospital +1-3-4 Ocean Pkwy and Avenue Z, Brooklyn 35	City	253	6,614	Req	22	12		65	14 Rotating General	42211
Cumberland Hospital +1-3-4 X54 39 Auburn Pl, Brooklyn 5	City	287	8,048	Req	83	12	196	65	6 Rotating General 2 Straight Medicine 2 Straight Surgery 1 Straight Pediatrics 1 Straight (Ob-Gyn)	42311 42332 42333 42334
Greenpoint Hospital +1-3-4-X54 Kingsland and Skillman Ave, Brooklyn 11	City	281	7,208	Req	21	12		65	12 Rotating General	42411
Jewish Hospital +1-3-4-X54 555 Prospect Pl, Brooklyn 38	NPAssn	501	16,773	Req	42	12		35	30 Rotating General 3 Straight Pediatrics	42511 42534
Kings County Hospital Center +1-3-4-X54 Clarkson Ave, Brooklyn 3	City	3,302	54,787	Req	27	12		65	102 Rotating General 10 Straight Surgery 26 Straight Medicine 8 Straight Pediatrics 1 Straight Pathology	42611 42633 42632 42634 42636
Long Island College Hospital +1-3 X54 340 Henry St, Brooklyn 1	NPAssn	405	11,805	Req	44	12		50	12 Rotating General 2 Straight Medicine 2 Straight Surgery 1 Straight Pediatrics 4 Mix Med Surg Ob Gyn	42711 42732 42733 42734
Maimonides Hospital +1-3-X54 4802 Tenth Ave, Brooklyn 19	NPAssn	402	12,478	Req	34	12		85	24 Rotating General 5 Straight Medicine	42811 42832
Methodist Hospital +1-3 X54 6th St and 7th Ave, Brooklyn 15	Church	457	10,825	Req	38	24		50	12 Rotating General 2 Straight Medicine 1 Straight Surgery 1 Straight Pediatrics 1 Straight Pathology	42911 42932 42933 42934 42936

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NEW YORK—Continued										
Norwegian Lutheran Deaconesses Home and Hospital +1 2 4520 Fourth Ave Brooklyn 20	Church	205	6 462	Req	60	12		50	6 Rotating General 1 Straight (Ob Gyn)	43011 43035
Prospect Heights Hospital 1 2 775 Washington Ave Brooklyn 32	NPAssn	172	5,841	Req	30	12		100	5 Rotating General	57411
St. Catherine s Hospital +1 2 133 Bushwick Ave Brooklyn 6	Church	295	7 404	Req	40	12		125	10 Rotating General	43111
St John s Episcopal Hospital +1 2 480 Herkimer St Brooklyn 13	Church	251	7 718	Req	26	12		100	9 Rotating General 1 Straight Medicine 3 Straight Surgery 1 Straight Pediatrics	43211 43232 43233 43234
St. Mary s Hospital +1 2 1298 St Marks Ave , Brooklyn 13	Church	237	5,577	Req	85	12		100	8 Rotating General	43311
Unity Hospital +1 2 1545 St Johns Pl Brooklyn 13	NPAssn	226	7 029	Req	25	12		100	8 Rotating General	43411
Wyckoff Heights Hospital +1 2 374 Stockholm St , Brooklyn 37	NPAssn	251	9 090	Req	21	12		100	8 Rotating General	43511
Buffalo General Hospital +1 2-4-X49 100 High St Buffalo 3	NPAssn	650	15,894	Req	68	12	197	100	16 Rotating General 3 Straight Medicine 3 Straight Surgery	43611 43632 43633
Deaconess Hospital +1 2 568 Riley St. Buffalo 8	NPAssn	277	10 169	Req	27	12	208	200	8 Rotating General	43711
Edward J Meyer Memorial Hospital +1 4-X49 462 Grider St Buffalo 15	County	1 016	12 463	Req	41	12		170	24 Rotating General	43811
Mercy Hospital +1 2 565 Abbott Rd Buffalo 20	Church	300	12,515	Req	46	12	227	200	20 Rotating General	43911
Millard Fillmore Hospital +1 3 4-x49 875 Lafayette Ave. Buffalo 9	NPAssn	473	18,845	Req	42	12	197	230	12 Rotating General	44011
Allied Hospitals of the Sisters of Charity Hospital +1 2 2157 Main St Buffalo 14	Church	445	15,914	Req	29	12	198	200	18 Rotating General 2 Straight Ob -Gyn	44111 44135
Mary Imogene Bassett Hospital +1-2-x48-X50 Atwell Rd Cooperstown	NPAssn	110	3,369	Req	61	12		110	2 Rotating General 1 Straight Medicine 6 Mixed (Med Ob -Gyn.-Surg)	44211 44232 44222
Arnot-Ogden Memorial Hospital 1 2 Roe Ave Elmira	NPAssn	193	7,183	None	38	12	111	200	4 Rotating General	44311
St Joseph s Hospital 1-3 555 E Market St Elmira	NPAssn	229	7,851		35	12		300	4 Rotating General	44411
Flushing Hospital and Dispensary +1 3 4 44-14 Parsons Blvd., Flushing 55	NPAssn	318	12,697	Req	33	12		150	12 Rotating General	44511
North Country Community Hospital 1-3 St Andrews Lane Glen Cove	NPAssn	156	6,845	Req	44	12		200	4 Rotating General	44611
Glens Falls Hospital 1 2 100 Park St Glens Falls	NPAssn	250	10 068	Req	31	12		200	6 Rotating General	44711
Meadowbrook Hospital +1 2 Bethpage Tpke and Carman Ave Hempstead	County	600	12,824	Req	48	12		150	32 Rotating General	44811
Jamaica Hospital +1-3 89th Ave and VanWyck Expwy Jamaica 32	NPAssn	258	7,897	Req	52	12		125	8 Rotating General	44911
Mary Immaculate Hospital +1 3 4 152 11 89th Ave Jamaica 32	Church	295	8,901	None	23	12		100	6 Rotating General	45011
Queens General Hospital +1-3-4 82-68 164th St Jamaica 32	City	669	12,485	Req	35	12		65	42 Rotating General 4 Straight Surgery	45111 45133
Charles S Wilson Memorial Hospital +1 2 33-57 Harrison St. Johnson City	NPAssn	450	12,092	Req	41	12		175	12 Rotating General 2 Straight Medicine 2 Straight Surgery 1 Straight Ob -Gyn	45211 45232 45233 45235
Our Lady of Victory Hospital +2 800 Ridge Rd Lackawanna 18	Church	260	8,882	Req	30	12		150	6 Rotating General	45311
*St John s Long Island City Hospital +1 2 2501 Jackson Ave Long Island 1	Church	224	6 480	Req	32	12		100	13 Rotating General	
Nassau Hospital +1 3 Second St Mineola	County	257	12,917	Req	33	12		100	4 Rotating General	45511
Northern Westchester Hospital 1 2 E Main St Mount Kisco	NPAssn	145	4,063	Req	29	12		100	4 Rotating General	45611
Mount Vernon Hospital +1 2 N Seventh Ave Mount Vernon	NPAssn	219	8,663		34	12		100	6 Rotating General 1 Straight Surgery	45711 45733
St Luke s Hospital 1 3 4 70 Dubois St Newburgh	NPAssn	192	6,651	Req	37	12		150	6 Rotating General	45811
New Rochelle Hospital +1-3 4 16 Guion Pl. New Rochelle	NPAssn	301	9,534	Req	32	12		150	10 Rotating General	45911
Bellevue Hospital Center X50-51 53 28th St and First Ave New York 16	City	2,857	46,531	Req	39	12		65		
First Medical Division— Columbia University +1-3 Dr Dickinson Richards				Req		12	No	60	12 Mix (Med Chest Surg or Path)	46007
First Surgical Division— Columbia University +1 2 Dr Robert Wiley				Req		12	No	60	4 Rot. (Surg Major) 2 Straight Surgery	46118 46133
Second Medical Division— Cornell University +1 3 Dr Thomas Almy				Req		12	No	65	2 Mixed (Med Path) 16 Straight Medicine	46227 46232
Second Surgical Division— Cornell University +1 2 Dr Cranston Holman				Req		12	No	65	7 Straight Surgery	46333
Third Medical Division—New York University College of Medicine +1 2 Dr William Tillett—Medicine				Req		12	297	65	8 Mixed (Med Surg) 12 Straight Medicine	46424 46432
Third Surgical Division—New York University College of Medicine +1 2 Dr John Mulholland—Surgery Dr William Studdiford—Ob -Gyn				Req		12	297	65	6 Straight Surgery 10 Straight Ob -Gyn	46533
Third Division—Dept of Pathology New York University College of Medicine Dr Sigmund Wilens									1 Straight Pathology	90036
Third Division—Dept of Pediatrics New York University College of Medicine Dr L Emmett Holt Jr									18 Straight Pediatrics	92934

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Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
NEW YORK—Continued										
Fourth Medical Division— New York University Post Graduate Medical School +1 3-4 Dr Charles Wilkinson				Req		12	296	65	10 Straight Medicine	46032
Fourth Surgical Division— New York University Post Graduate Medical School +1 3 4 Dr William Hinton				Req		12	298	65	8 Straight Surgery	46733
Beth David Hospital +1-3 161 E 90th St New York 28	NPAssn	167	5 867	Req	33	12		65	12 Rotating General	46911
Beth Israel Hospital +1 3-4 Stuyvesant Square East, New York 3	NPAssn	357	9,388	Req	45	12		95	16 Rotating General	47011
Bronx Hospital +1-3-4 1276 Fulton Ave New York 56	NPAssn	329	9,189	Req	22	12		85	9 Rotating General	47111
Columbus Hospital 3 227 E 19th St New York 3	NPAssn	300	7,111	Req	21	12		75	12 Rotating General	47211
Fordham Hospital +1 3 4 Southern Blvd and Crotona Ave New York 58	City	414	10,771	Req	23	12		65	17 Rotating General	47411
French Hospital +1-3 330 W 30th St New York 1	NPAssn	256	6,304		39	12	235	50	10 Rotating General	47511
Harlem Hospital +1-3 4 506 Lenox Ave, New York 37	City	705	21,084	Req	24	12		165	42 Rotating General	47811
Hospital for Joint Diseases +1-3-4 1919 Madison Ave New York 35	NPAssn	280	5,373	Req	30	12	199	50	9 Rotating General	47911
Jewish Memorial Hospital +1-3-4 196th St and Broadway, New York 34	NPAssn	165	5,937	Req	89	12		75	10 Rotating General	48011
Knickerbocker Hospital +1-3 70 Convent Ave New York 27	NPAssn	210	5,314	Req	22	12	200	100	9 Rotating General	48111
Lebanon Hospital +1 3 1650 Grand Concourse New York 57	NPAssn	214	6 627	None	41	12		50	12 Rotating General 1 Straight Medicine 1 Straight Surgery	48211 48232 48233
Lenox Hill Hospital +1 3-4 111 E 76th St, New York 21	NPAssn	532	12,297	Req	45	12		80	28 Rotating General 1 Mixed (Med Surg Ob Gyn)	48311 48322
Lincoln Hospital +1-3-4 320 Concord Ave New York 51	City	409	11,840	Req	26	12		65	12 Rotating General	48411
Metropolitan Hospital +1 3 4-X52 Welfare Island New York 17	City	1 054	11,860		41	12		65	6 Rotating General	48511
Misericordia Hospital +1-3 531 E 86th St New York 28	Church	191	6,284	Req	18	12		50	8 Rotating General	48611
Montefiore Hospital +1-3 4-X50 100 E Gun Hill Rd New York 67	NPAssn	613	6 695	None	50	12		35	1 Mixed (Med Ped) 22 Mixed (Med -Surg Pul Neurology Neoplastic)	48748 48785
Morrisania City Hospital +1-3-4 168th St and Gerard Ave New York 52	City	162	10,082	Req	19	12		65	16 Rotating General	48811
Mother Cabrini Memorial Hospital +1 3 611 Edgecombe Ave. New York 32	Church	170	3 485	Req	25	12		100	6 Rotating General	48911
Mount Sinai Hospital +1-4-X50 One E 100th St New York 29	NPAssn	957	15,318	Req	48	12		25	31 Rotating General 7 Straight Surgery	49011 49033
New York City Hospital +1-3-4 Welfare Island New York 17	City	837	12 290	Req	20	12		65	24 Rotating General	49111
New York Hospital + 1-3-4 X51 525 E 68th St, New York 21	NPAssn	1,080	22 848	Req	65	12			15 Straight Medicine 15 Straight Surgery 1 Straight Pediatrics 2 Straight Pathology	49232 49233 49234 49236
New York Infirmary +1 3-4 321 E 15th St New York 3	NPAssn		1,915	Req	54	12		75	5 Rotating General	87511
New York Polyclinic Medical School and Hospital +1-3-4 345 W 50th St New York 19	NPAssn	391	9 379	Req	38	12		75	8 Rotating General	49411
Presbyterian Hospital +1-3-4-X50 622 W 168th St, New York 32	NPAssn	1,523	30,493	Req	62	12		166	12 Straight Medicine 12 Straight Surgery 3 Straight Pathology	49532 49533 49536
Roosevelt Hospital +1-4-X50 428 W 59th St, New York 19	NPAssn	401	9 038	Req	42	12		83	6 Mixed (Med Ped Surg) 6 Mixed (Surg Gyn Med)	49623 49672
St Clare's Hospital +1-3 415 W 51st St, New York 19	Church	301	8 421	None	30	12		100	11 Rotating General 1 Straight Medicine 2 Straight Surgery	49711 49732 49733
St Francis Hospital +1-3 525 E 142d St New York 54	Church	300	7,885	Req	29	12		100	12 Rotating General	49811
St Luke's Hospital +1-3-4-X50 421 W 113th St, New York 25	NPAssn	538	10,114	Req	55	12		85	8 Mixed (9 mo Med 3 mo Surg) 6 Mixed (9 mo Surg 3 mo Med)	49923 49924
St Vincent's Hospital +1-3-x53 153 W 11th St, New York 11	Church	681	18,018	Req	44	12		85	19 Rotating General 2 Straight Medicine 6 Straight Surgery	50011 50032 50033
*Sydenham Hospital +1-3-4 565 Manhattan Ave, New York 27	City	220	6,620	None	46	12		65	9 Rotating General	
Mount St Mary's Hospital 1-3 515 Sixth St, Niagara Falls	Church	200	6,327	Req	49	12	143	200	4 Rotating General	50311
United Hospital +1-3 Boston Post Rd, Port Chester	NPAssn	225	6,483	Req	32	12		200	8 Rotating General	50411
St Francis Hospital 1-3 Hillcrest Poughkeepsie	Church	175	6,193	Req	88	12		200	6 Rotating General	50511
Vassar Brothers Hospital +1-3 Reade Pl, Poughkeepsie	NPAssn	228	7,366	Req	28	12	256	200	4 Rotating General	50611
Genesee Hospital +1-3 x55 224 Alexander St, Rochester 7	NPAssn	222	9,029	Req	73	12 24	No	50	8 Rotating General (12 mos) 4 Rotating General (24 mos) 1 Straight Medicine 2 Straight Surgery 1 Straight Pathology	50711 50716 50732 50733 50734
Highland Hospital +1-3 x55 South Ave and Bellevue Dr, Rochester 20	NPAssn	190	7,902	Req	58	12	257	75	8 Rotating General	50811
Rochester General Hospital +1-3-4-x55 601 Main St, W, Rochester 8	NPAssn	332	13,491	Req	73	12	278	75	20 Rotating General	50911
St Mary's Hospital +1-3-x55 89 Genesee St, Rochester 11	Church	335	13,875	Req	58	12		205	15 Rotating General	51011

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Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
NEW YORK—Continued										
Strong Memorial Rochester Municipal Hospitals +1 3 4 X55 Crittenden Blvd Rochester 20	NPAssn	734	17 791	Req	75	24	294	25	12 Rotating General 11 Straight Medicine 12 Mixed (Surg Ob Gyn) 4 Straight Pediatrics 4 Straight Pathology	51111 51132 51126 51134 51136
Ellis Hospital +1-2-X48 1101 Nott St Schenectady 8	NPAssn	359	13 124	Req	47	12		125	10 Rotating General	51211
St. Clare s Hospital 1 3 600 McClellan St Schenectady 4	Church	185	7,809	Req	30	12		150	5 Rotating General	51311
St. Vincent s Hospital +1-3 355 Bard Ave Staten Island 10	Church	246	8,376	Req	28	12		100	8 Rotating General	51411
Staten Island Hospital +1 3 101 Castleton Ave Staten Island 1	NPAssn	215	7 414	Req	42	12		100	8 Rotating General	51511
General Hospital +1-2-x56 116 E Castle St Syracuse 5	NPAssn	129	5,340	Req	25	12		167	4 Mixed (Med Surg -Ob Gyn)	51722
St. Joseph s Hospital +1-x56 301 Prospect Ave Syracuse 3	Church	304	11,254	Req	40	12		166	12 Rotating General	51811
State University of New York Med Center +1-X56-x56 766 Irving Ave Syracuse 10	NPAssn	822	29,936	Req	41	12		166	20 Rotating General 5 Straight Medicine 2 Straight Surgery 1 Straight Pediatrics	51611 51632 51633 51634
St. Mary s Hospital 1 3 87 Oakwood Ave Troy	Church	254	6,863	Req	29	12		175	4 Rotating General 2 Rotating (Surg Major)	51911 51918
Samaritan Hospital +1 3 Peoples and Burdett Aves Troy	NPAssn	166	6,231	Req	44	12		200	8 Rotating General	52011
Grasslands Hospital +1-3 4 Valhalla	County	800	4 425	Req	57	12		100	18 Rotating General	52111
St. Agnes Hospital 3 North St., White Plains	Church	153	4,170	Req	36	12		150	4 Rotating General	52211
White Plains Hospital +1-3 41 E Post Rd White Plains	NPAssn	210	6,846	Req	39	12		100	6 Rotating General	52311
St John s Riverside Hospital +1 3 Ashburton and Palisade Aves Yonkers 2	NPAssn	214	6,671	Req	32	12		100	8 Rotating General	52411
St Joseph s Hospital 1 3-x56 127 S Broadway Yonkers 2	Church	180	3,880	Req	26	12		100	8 Rotating General	52511
Yonkers General Hospital 1 3 127 Ashburton Ave Yonkers 2	NPAssn	142	5,121	Req	71	12		100	7 Rotating General	52611
NORTH CAROLINA—Hospitals 11 Internships 172										
North Carolina Memorial Hospital +1-X57 Univ of North Carolina Chapel Hill	State	411	4,531	Req	64	12	289	125	10 Straight Medicine 8 Straight Surgery 6 Mixed (Med Ped) 4 Straight Pediatrics	90032 90033 90048 90034
Charlotte Memorial Hospital +1-3 4 1400 Scott Ave Charlotte 3	NPAssn	335	12 085	Req	64	12		150	10 Rotating General	52711
Duke Hospital +1 3 4 X58 Durham	NPAssn	542	16 124	Req	56	12	233		22 Straight Medicine 17 Straight Surgery 4 Mixed (Ob Ped.) 10 Straight Pediatrics 4 Straight Pathology	52932 52933 52938 52934 52936
Lincoln Hospital +1 3-x58 1301 Fayetteville St Durham 5	NPAssn	125	2,905	Req	20	12		150	4 Rotating General	53011
Watts Hospital +1 3-X57 Broad St. and Club Blvd Durham	NPAssn	229	8,831	Req	40	12		100	7 Rotating General 2 Straight Medicine 2 Straight Surgery 2 Straight Obstetrics (only)	87711 87732 87733 87739
Rex Hospital +1-x57 1311 St Mary s St Raleigh	NPAssn	325	12,585	None	29	12		150	12 Rotating General	53211
St Agnes Hospital +1 Oakwood Ave. Raleigh	Church	100	3,347	Req	29	12		200	4 Rotating General	53311
James Walker Memorial Hospital +1-3 N. Tenth St Wilmington	NPAssn	250	10,385	Req	30	12		100	4 Rotating General 2 Straight Surgery	53411 53433
City Memorial Hospital +1 3 Hospital St Winston Salem 4	City	287	11 937	Req	45	12		150	15 Rotating General	53511
Kate Bitting Reynolds Memorial Hospital +1 1101 E Seventh St., Winston Salem	City	200	4,916	Req	30	12		150	6 Rotating General	53611
North Carolina Baptist Hospital +1 3 X59 300 S Hawthorne Rd., Winston Salem 7	Church	260	9 438	Req	51	12		83	7 Straight Medicine 3 Straight Surgery 3 Mixed (Ped Ob -Gyn) 3 Straight Pediatrics 1 Straight Pathology	53732 53733 53708 53734 53736
NORTH DAKOTA—Hospitals 4 Internships 16										
St John s Hospital 1 3 365 Sixth Ave S Fargo	Church	181	6,113	Req	86	12		150	4 Rotating General	87011
St Luke s Hospital + 727 Broadway Fargo	NPAssn	170	6,858	Req	57	12		150	4 Rotating General	53911
Grand Forks Deaconess Hospital 222 S 4th St Grand Forks	NPAssn	164	5 735	Req	63	12		175	4 Rotating General	54011
Trinity Hospital 1 17 14th Ave Minot	County	184	6,623	Req	69	3		50	4 Rotating General	91711
OHIO—Hospitals 49 Internships 678										
City Hospital +1 3 525 E Market St Akron 4	NPAssn	419	18,260	Req	39	12	201	200	24 Rotating General	54111
Peoples Hospital +1 3 256-270 W Cedar St Akron 7	NPAssn	221	10 478	Req	42	12	201	200	24 Rotating General	54211
St Thomas Hospital +1 3 444 N Main St Akron 10	Church	205	9 050	Req	58	12	201	200	6 Rotating General	54311
Aultman Hospital +1 3 625 Clarendon Ave S W Canton 10	NPAssn	301	11 437	Req	56	12		200	14 Rotating General	54411
Mercy Hospital +1 3 Market and 8th Sts N W Canton 2	Church	302	13 734	Req	25	12		125	8 Rotating General	54511
Bethesda Hospital +1 3 Oak St and Reading Rd Cincinnati 6	Church	230	10,241	Req	41	12	138	150	8 Rotating General 2 Mixed (Med -Ob Surg)	54611 54609
Christ Hospital +1 2139 Auburn Ave Cincinnati 19	NPAssn	356	11,608	Req	46	12	135	150	13 Rotating General	54711
Cincinnati General Hospital +1 4-X60 3231 Burnet Ave Cincinnati 29	City	810	15 027	Req	57	12	290	15	52 Rotating General	54711

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Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
OHIO—Continued										
Deaconess Hospital +1-3 Clifton Ave and Straight St, Cincinnati 20	Church	169	6,550	Req	32	12	207	125	6 Rotating General	54911
Good Samaritan Hospital +1 3 3217 Clifton Ave, Cincinnati 20	NPAssn	559	17,058	Req	35	12		150	16 Rotating General	55011
Jewish Hospital +1 3 Burnet Ave, Cincinnati 29	NPAssn	278	11,092	Req	64	12	237	125	15 Rotating General	55111
St Mary's Hospital +1 3 816 Betts St, Cincinnati 14	Church	214	6 670	Req	30	12		200	11 Rotating General	55211
City Hospital +1 3 4-X61 3395 Scranton Rd, Cleveland 9	City	1,031	10,145	Req	47	12		73	30 Rotating General	55311
Evangelical Deaconess Hospital +1 3 4229 Pearl Rd, Cleveland 9	Church	201	8 557	None	30	12		100	8 Rotating General	90911
Fairview Park Hospital +1 3 3305 Franklin Blvd, Cleveland 13	NPAssn	150	7,901	Req	32	12		100	6 Rotating General	55411
Lutheran Hospital +1 3 2609 Franklin Blvd, Cleveland 13	Church	189	7,502	None	47	12	181	100	12 Rotating General	55611
Mount Sinai Hospital +1 4 1800 E 105th St, Cleveland 6	NPAssn	350	14 035	Req	45	12		150	16 Rotating General	55711
St Alexis Hospital +1 3 5163 Broadway Ave, Cleveland 27	Church	251	10,641	None	38	12		250	8 Rotating General	55811
St John's Hospital +1 3 7911 Detroit Ave, Cleveland 2	NPAssn	236	8 737	None	36	12		150	7 Rotating General	55911
St Luke's Hospital +1 3 4 11311 Shaker Blvd, Cleveland 4	Church	448	18,088	Req	47	12		100	27 Rotating General	56011
St Vincent Charity Hospital +1 3 E 22d and Central Ave, Cleveland 15	Church	317	9,810	Req	27	12	238	200	15 Rotating General	56111
University Hospitals +1-X61 2065 Adelbert Rd, Cleveland 6	NPAssn	820	22,891	Req	74	12		100	16 Rotating General 12 Straight Medicine 8 Straight Surgery 2 Straight Pediatrics	56211 56232 56233 56234
Doctors Hospital +1-3 12345 Cedar Rd, Cleveland Heights 6	NPAssn	185	7,481	None	51	12		100	12 Rotating General	56311
Grant Hospital +1 3 125 S Grant Ave, Columbus 15	NPAssn	261	10,071	None	30	12	139	200	13 Rotating General	56411
Mount Carmel Hospital +1 793 W State St, Columbus 8	NPAssn	410	14,847	None	44	12	139	200	15 Rotating General	56511
Ohio State University Hospital +1-3 4-X62 10th and Perry St, Columbus 1	State	528	15 631	Req	60	12	268	125	48 Rotating General	56611
White Cross Hospital +1 4 700 N Park St, Columbus 8	State	350	13,715	Req	42	12		275	12 Rotating General	56711
Good Samaritan Hospital +1 3 1425 W Fairview Ave, Dayton 6	Church	310	14,254	Req	51	12		200	12 Rotating General	56811
Miami Valley Hospital +1 3 4 131 Apple St, Dayton 9	NPAssn	429	17,933	Req	46	12			16 Rotating General	56911
St Elizabeth Hospital +1-3 49 Hopeland St, Dayton 8	NPAssn	325	13,359	Req	29	12		125	16 Rotating General	57011
Huron Road Hospital +1 3 13951 Terrace Rd, East Cleveland 12	NPAssn	289	11,765	Req	39	12		200	8 Rotating General	57111
Elyria Memorial Hospital +1-3 630 E River St, Elyria	NPAssn	245	6 513	Req	36	12		150	4 Rotating General	90111
Euclid Glenville Hospital +1 3 E 185th St and Lake Erie, Euclid 19	NPAssn	172	7,208	Req	48	12		100	6 Rotating General	55511
Marymount Hospital +1-3 12300 McCracken Rd, Garfield Heights 25	Church	190	9 000	Req	37	12	181	200	10 Rotating General	57211
Mercy Hospital +1-3 116 Dayton, Hamilton	Church	300	11,858	Req	36	12		150	6 Rotating General	57311
Lakewood Hospital +1-3 14519 Detroit Ave, Lakewood 7	City	275	10,692	Req	36	12	181	175	6 Rotating General	57411
Lima Memorial Hospital +1-3 Linden and Mobel Sts, Lima	NPAssn	248	10 072	Req	24	12		250	8 Rotating General	57511
St Rita's Hospital +1-3 801 W High St, Lima	Church	287	10,764	Req	46	12	209	225	8 Rotating General	57611
Mercy Hospital 1 1343 N Fountain Blvd, Springfield	Church	280	9 252		41			175	8 Rotating General	57811
Springfield City Hospital 1 3 High St at Burnett Rd, Springfield	City	214	7,238	Req	78	12		175	8 Rotating General	57711
Ohio Valley Hospital 380 Summit Ave, Steubenville	NPAssn	203	9,134	Req	29	12	193	225	8 Rotating General	92711
Flower Hospital 1-3 3349 Cherry St, Toledo 12	Church	165	7,022	Req	43	12	202	200	5 Rotating General	57811
Maumee Valley Hospital +1-3 2025 Arlington Ave, Toledo 9	County	292	3,914	Req	46	12		200	8 Rotating General	57911
Mercy Hospital +1-3 2221 Madison Ave, Toledo 2	Church	282	12,449	Req	43	12		100	14 Rotating General	58011
Riverside Hospital 1 3 1600 Summit St, Toledo 11	NPAssn	166	6,489	Req	32	12		200	6 Rotating General	58111
St Vincent's Hospital +1 3 2213 Cherry St, Toledo 8	NPAssn	488	15 362	Req	40	12	182	200	15 Rotating General	58211
Toledo Hospital +1-3 2142 N Cove Blvd, Toledo 6	NPAssn	278	11,103	Req	63	12		200	10 Rotating General	58311
St Elizabeth Hospital +1-3 1044 Belmont Ave, Youngstown 4	Church	312	14,009	Req	29	12		200	10 Rotating General	58411
Youngstown Hospital +1 3-4 Oak Hill and Francis St, Youngstown 1 Gypsy Lane and Goleta Ave, Youngstown 4	NPAssn	700	22,392	Req	46	12		100	18 Rotating General	58511
OKLAHOMA—Hospitals, 6, Internships, 78										
Mercy Hospital Oklahoma City General 501 N W 12th St, Oklahoma City 3	Church	147	7,111	Req	53	12	183	100	10 Rotating General	58611
St Anthony Hospital +-X63 601 N W 9th St, Oklahoma City 3	Church	375	14,167	Req	81	12		100	8 Rotating General	58711
University Hospitals +1-3-4-X63 800 N E 13th St, Oklahoma City 4	State	420	9,703	Req	59	12 24	274	75	12 Rotating General 8 Mix (Med Surg) 4 Mix (Ob Ped)	58811 58821 [illegible]
Wesley Hospital +1-X63 300 N W 12th St, Oklahoma City 3	Part	200	9 833	Req	43	12	183	100	6 Rotating General	59011
Hillcrest Medical Center +1 1653 E 12th St, Tulsa	NPAssn	850	15,503	Req	85	12		100	16 Rotating General	59111
St John's Hospital +1 3 1923 S Utica, Tulsa	Church	455	18,224		27	12		100	10 Rotating General 2 Straight Pathology	59211 [illegible]

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OREGON—Hospitals 7, Internships 95										
Sacred Heart General Hospital [1] 751 E 12th Ave Eugene	Church	275	12,818	Req	72	12		150	8 Rotating General	59311
Emanuel Hospital +[1] [3] 2800 N Commercial Ave Portland 12	Church	321	14,382	Req	51	12		150	20 Rotating General	59411
Good Samaritan Hospital +[1] [3] 1015 N W 22d Ave Portland 10	Church	476	14 085	None	67	12	271	150	16 Rotating General 1 Straight Pathology	59511 59526
Portland Sanitarium and Hospital [1] 932 S E 60th Ave Portland 15	Church	164	9,335	None	30	12		119	8 Rotating General	59611
Providence Hospital +[1] [3] 700 N E 47th St Portland 13	Church	283	10 706	Req	62	12	272	150	12 Rotating General	59711
St Vincent s Hospital +[1] [3] 2447 N W Westover Rd Portland 10	Church	311	13 487	Req	53	12	283	150	12 Rotating General	59811
University of Oregon Medical School Hospitals and Clinics +[1] [3]-X64 3181 S W Sam Jackson Park Rd. Portland 1	State	463	8 035	Req	71	12		75	18 Rotating General	59911
PENNSYLVANIA—Hospitals 72 Internships 873										
Abington Memorial Hospital +[1-3] [4] X67 York and Woodland Rds Abington	NPAssn	303	10,140	Req	54	12		50	12 Rotating General	60011
Allentown Hospital +[1] 17th and Chew Sts Allentown	NPAssn	474	13 608	Req	47	12		200	14 Rotating General	60111
Sacred Heart Hospital +[1] [3] 4th and Chew Sts Allentown	Church	390	9 632	Req	39	12		200	8 Rotating General	60211
Altoona Hospital [1] [3] 7th St and Howard Ave. Altoona	NPAssn	322	8,913	Req	29	12		240	8 Rotating General	60311
Mercy Hospital [3] 2601 8th Ave Altoona	NPAssn	176	8,248	Req	31	12		200	4 Rotating General	60411
St. Luke s Hospital +[1-4] 801 Ostrum St Bethlehem	NPAssn	363	11,258	Req	41	12		200	9 Rotating General	60511
Bryn Mawr Hospital +[1] [3] Bryn Mawr Ave Bryn Mawr	NPAssn	358	9 066	Req	58	12		75	12 Rotating General	60611
Chester Hospital [1] [3-4] 9th and Barclay Sts Chester	NPAssn	287	9 467	Req	58	12		250	8 Rotating General	60711
George F Geisinger Memorial Hospital +[1] [3] [4] Danville	NPAssn	270	10 177	None	57	12		100	12 Rotating General	60811
Thomas M. Fitzgerald Mercy Hospital +[1] [3]-x68 Lansdowne Ave and Baily Rd Darby	Church	202	8,209	Req	42	12		200	10 Rotating General	60911
Hamot Hospital +[1] [3] 4 E 2d St Erie	NPAssn	304	11,389	Req	35	12		150	8 Rotating General	61111
St Vincent s Hospital +[1] [3] 2420 Sassafras St Erie 6	NPAssn	305	11,923	Req	23	12		200	10 Rotating General	61211
Westmoreland Hospital +[1] [3] 532 W Pittsburgh St Greensburg	NPAssn	230	6 437		29	12		250	4 Rotating General	61311
Harrisburg Hospital +[1] [3] [4]-X65 Front and Mulberry Harrisburg	NPAssn	500	13,832	Req	35	12		200	15 Rotating General	61411
Harrisburg Polyclinic Hospital +[1] Third and Radnor Sts Harrisburg	NPAssn	368	10,978	Req	51	12		200	12 Rotating General	61511
Conemaugh Valley Memorial Hospital [1] [3] 1086 Franklin St Johnstown	NPAssn	366	11,533	Req	37	12		225	10 Rotating General	61611
Lancaster General Hospital +[1] 555 N Duke St Lancaster	NPAssn	450	12 091	Req	34	12		200	12 Rotating General	61811
St Joseph s Hospital +[1] College and Marietta Ave Lancaster	Church	232	7,246	Req	41	12		175	6 Rotating General	61911
McKeesport Hospital [1] [3] 1500 Fifth Ave McKeesport	NPAssn	407	12 401	Req	26	12		250	10 Rotating General	62011
Montgomery Hospital [1] [3] Powell and Fornance Sts Norristown	NPAssn	187	7,375	Req	33	12		250	6 Rotating General	62111
Sacred Heart Hospital +[1] [3] 1430 DeKalb St Norristown	Church	118	4,159	Req	43	12	258	250	2 Rotating General	62211
Albert Einstein Medical Center Northern Division +[1] [3-4] York and Tabor Rds Philadelphia 41	NPAssn	394	12,711	Req	50	12		75	18 Rotating General	63111
Southern Division +[1] [3] [4]-X65 5th and Reed Sts Philadelphia 47	NPAssn	264	8,212	Req	69	12		75	12 Rotating General	63711
Chestnut Hill Hospital +[1] [3] 8835 Germantown Ave , Philadelphia 18	NPAssn	127	5 038	Req	42	12		250	5 Rotating General	91011
Episcopal Hospital +[1] [3] [4]-X67 Front St and Lehigh Ave Philadelphia 25	NPAssn	464	8,992	Req	46	12		100	12 Rotating General	62311
Frankford Hospital +[1] [3] 4910 Frankford Ave Philadelphia 24	NPAssn	188	6 026	Req	61	12		300	8 Rotating General	62411
Germantown Dispensary and Hospital +[1]-x66-69 E Penn and Wister Sts Philadelphia 44	NPAssn	311	9,579	Req	58	12		100	12 Rotating General	62511
Graduate Hospital of the University of Pennsylvania +[1] [3] [4] 19th and Lombard Sts Philadelphia 46	NPAssn	352	8,666	Req	49	12	184	41	12 Rotating General	62611
Hahnemann Hospital +[1] [3]-X65 230 N Broad St Philadelphia 2	NPAssn	590	15,553	Req	51	12		25	24 Rotating General	62711
Hospital of the University of Pa +[1] [3-4]-X68 3400 Spruce St Philadelphia 4	County	705	21,951	Req	68	12		41	32 Rotating General	62811
Hospital of the Woman s Medical College of Pennsylvania +[1] [3]-X69 3300 Henry Ave Philadelphia 29	NPAssn	207	5 658	Req	52	12		100	6 Rotating General	62911
Jefferson Medical College Hospital +[3] [4]-X66 10th and Sansom Sts Philadelphia 7	NPAssn	786	19,193	Req	38	12		25	34 Rotating General	63011
Lankenau Hospital +[1]-x66 Girard and Corinthian Aves Philadelphia 30	NPAssn	260	7,348	Req	52	12		75	10 Rotating General	63211
Memorial Hospital [1] [3] 5800 Ridge Ave Philadelphia 28	NPAssn	149	4,639	Req	30	12		250	4 Rotating General	63311
Methodist Episcopal Hospital +[1] [3]-x66 Broad and Wolf Sts Philadelphia 48	Church	235	57,348	Req	43	12		150	6 Rotating General	63511
Misericordia Hospital [1] 54th and Cedar Ave Philadelphia 43	Church	278	9,316	Req	35	12		200	10 Rotating General	63611
Nazareth Hospital +[1] [illegible] Holme Ave Philadelphia 15	State	220	9,220	Req	32	12		200	8 Rotating General	63811
Pennsylvania Hospital +[1] [3] [4]-X66-68 8th and Spruce Sts Philadelphia 7	NPAssn	433	10,984	Req	60	12	259		18 Rotating General	63911
Philadelphia General Hospital +[1] [3] [4]-X65-66-67-68-69 34th St and Curie Ave Philadelphia 4	City	2,840	26 162	None		12		55	108 Rotating General	64011
Presbyterian Hospital +[1] [4]-x68 51 N 39th St Philadelphia 4	State	346	8,268	Req	41	12	184	100	12 Rotating General	64111

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Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
PENNSYLVANIA—Continued										
St Agnes Hospital 1 3-x65 1900 S Broad St, Philadelphia 45	Church	350	9,901	Req	12	12		200	4 Rotating General	64211
St Joseph's Hospital +1-3 4-x66 16th St and Girard Ave Philadelphia 30	State	109	5 016	Req	18	12		200	6 Rotating General	64311
St Luke's and Children's Medical Center +1 x65 Franklin and Thompson Sts, Philadelphia 22	NPAssn	261	7,756	Req	25	12		200	8 Rotating General	64411
St Mary's Hospital + Frankford Ave and Palmer St, Philadelphia 25	Church	231	7,911	Req	51	12		200	6 Rotating General	64511
Temple University Hospital +2-X67 3401 N Broad St Philadelphia 40	NPAssn	645	16,204	Req	52	12	284	25	28 Rotating General	64611
Woman's Hospital +1 3-X69-70 Preston and Parrish Sts Philadelphia 4	NPAssn	143	5 208	Req	34	12		150	3 Rotating General 1 Rot (Ob Gyn Major) 1 Straight Medicine	64711 64715 64732
Allegheny General Hospital +1 3 4-X70 320 E North Ave Pittsburgh 12	NPAssn	551	14 574	Req	30	12		150	24 Rotating General	64811
Mercy Hospital +1 3-X70 1400 Locust St Pittsburgh 19	NPAssn	655	14,988	Req	36	12		150	24 Rotating General	64911
Montefiore Hospital +1 3 3459 Fifth Ave Pittsburgh 13	NPAssn	296	9 740	Req	48	12		83	12 Rotating General	65011
*Pittsburgh Hospital +1 3 [illegible] Frankstown Ave Pittsburgh 6	NPAssn	225	7,018	Req	31	12		200	6 Rotating General	
Presbyterian Hospital +1 3 4-X70 230 Lothrop St Pittsburgh 13	NPAssn	372	8 452	Req	36	12	239	50	24 Rotating General	65211
St Francis Hospital +1 3 4-X70 45th St Pittsburgh 1	NPAssn	691	14 132	Req	36	12		150	18 Rotating General	85111
St John's General Hospital +1 [illegible] McClure Ave Pittsburgh 12	NPAssn	180	7,030	Req	26	12		200	5 Rotating General	65411
St Joseph's Hospital and Dispensary 2117 Carson St Pittsburgh 3	Church	170	5,141	Req	28	12		250	6 Rotating General	65511
St Margaret Memorial Hospital +1 [illegible] 46th St Pittsburgh 17	Church	121	3 993	Req	52	12		150	4 Rotating General	65611
Shadyside Hospital 1 3 5230 Centre Ave Pittsburgh 32	NPAssn	308	8 896	None	35	12		230	10 Rotating General	65711
Southside Hospital +1 3 S Twentieth and Jane Sts Pittsburgh 3	NPAssn	303	8,971		39			225	8 Rotating General	65811
Western Pennsylvania Hospital +1 3 4 4800 Friendship Ave Pittsburgh 24	NPAssn	550	14,995	Req	40	12		200	18 Rotating General	65911
Community General Hospital +1-3 135 N 6th St Reading	NPAssn	127	4 656	Req	26	12		200	5 Rotating General	66011
Reading Hospital +1 6th and Spruce Sts Reading	NPAssn	475	12 203	Req	54	12		200	14 Rotating General	66111
St Joseph's Hospital +1 3 1215 Walnut St Reading	Church	206	7 047	Req	49	12	260	200	6 Rotating General	66211
Robert Packer Hospital +1 3 4-X65 S Wilbur Ave Sayre	NPAssn	340	12 465	Req	55	12		75	12 Rotating General	66411
Scranton State Hospital +1 201 205 Mulberry St Scranton 5	State	200	5 948	Req	25	12		180	10 Rotating General	66611
Sewickley Valley Hospital 1 3 Blackburn Road Sewickley	NPAssn	225	6 292	Req	27	12		275	8 Rotating General	66711
Uniontown Hospital 1 3 500 W Berkeley St Uniontown	NPAssn	251	8,980	Req	41	12		300	5 Rotating General	66811
Washington Hospital 155 Wilson Ave Washington	NPAssn	206	6 682	Req	29	12		200	6 Rotating General	66911
Chester County Hospital +1 Boot Rd Westchester	NPAssn	[illegible]	4 350	Req	43	12		250	6 Rotating General	88211
Mercy Hospital +1 3 196 Hanover St Wilkes Barre	NPAssn	180	5 612	Req	27	12		250	6 Rotating General	67011
Wilkes Barre General Hospital +1 Cor N River and Auburn Sts, Wilkes Barre	NPAssn	376	10,144	Req	34	12		200	10 Rotating General	67111
Columbia Hospital +1 3 312 Penn Ave Wilkinsburg	NPAssn	191	6 651	Req	50	12		250	6 Rotating General	67211
Divine Providence Hospital 1 1100 Grampian Blvd Williamsport	Church	165	5 415	Req	63	12		200	4 Rotating General	91311
Williamsport Hospital +1 777 Rural Ave Williamsport 20	NPAssn	288	8 871	Req	41	12		200	8 Rotating General	67311
York Hospital +1-3 S George St and Rathton Rd York	NPAssn	339	10,447	Req	30	12		200	8 Rotating General	67411
RHODE ISLAND—Hospitals, 5, Internships, 52										
Newport Hospital +1 3 Friendship St Newport	NPAssn	181	5,165	Req	31	12		100	6 Rotating General	67511
Memorial Hospital + Prospect St Pawtucket	NPAssn	214	8 117	Req	38	12		200	8 Rotating General	67611
Rhode Island Hospital +1 2 4 593 Eddy St Providence 2	NPAssn	600	15,469	Req	67	24	186	75	18 Rotating General	67711
Roger Williams General Hospital +1 3 825 Chalkstone Ave Providence 8	NPAssn	210	7,406	Req	40	12		250	8 Rotating General	67811
St Joseph's Hospital 1 3 Broad St Providence 7	Church	310	8 262	Req	28	12	112	100	12 Rotating General	67911
SOUTH CAROLINA—Hospitals, 6, Internships, 91										
Roper Hospital +1 3 X71 Lucas and Calhoun Sts Charleston 16	NPAssn	450	13 708	Req	62	12		83	21 Rotating General	68011
Columbia Hospital +1 3 2020 Hampton St Columbia	County	439	13,401	Req	22	12		150	18 Rotating General	68111
McLeod Infirmary 1 4 101 121 W Cheves St Florence	NPAssn	200	8 186	Req	84	12		200	7 Rotating General	[illegible]
Greenville General Hospital +1 3 100 Memminger St Greenville	NPAssn	540	14,338	Req	41	12		100	24 Rotating General	68311
Orangeburg Regional Hospital +1 3 530 Carolina Ave N E Orangeburg	County	173	8 481	Req	28	12		150	6 Rotating General	68411
Spartanburg General Hospital + 800 N Church St Spartanburg	County	370	14,855	Req	20	12		150	15 Rotating General	[illegible]
SOUTH DAKOTA—Hospitals, 3, Internships, 20										
McKennan Hospital 1 3-x72 7th Ave and 21st St, Sioux Falls	Church	200	7 221	Req	46	12		100	6 Rotating General	
Sioux Valley Hospital 1 3 x72 1123 S Euclid Ave Sioux Falls	NPAssn	190	13,274	None	32	12	113	150	8 Rotating General	[illegible]
Sacred Heart Hospital +1-3 X72 W 4th St Yankton	Church	220	5,712	Req	47				6 Rotating General	[illegible]

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Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
TENNESSEE—Hospitals 13 Internships 213										
Baroness Erlanger Hospital +[1 3 4] 264 Wiehl St, Chattanooga 3	CyCo	450	16 998	Req	25	12	256	100	12 Rotating General 2 Mixed (Med Ob Ped)	68911 68950
Holston Valley Community Hospital [1] W Ravine St Kingsport	NPAssn	236	10,274	Req	45	12		250	4 Rotating General	68311
Fort Sanders Hospital [1 3] 1909 W Clinch Ave Knoxville 16	NPAssn	189	7,996	Req	35	12	114	250	6 Rotating General	69111
Knoxville General Hospital +[1 4] Cleveland Pl Knoxville 17	City	285	7 067	Req	30	12		128	12 Rotating General	
St Mary's Memorial Hospital +[1 3] Oakhill Ave Knoxville 17	Church	260	10 703	Req	32	12	187	250	10 Rotating General	69311
Baptist Memorial Hospital +[1 3] 899 Madison Ave Memphis	Church	500	22 482	Req	33	12	214	75	20 Rotating General 1 Straight Medicine 1 Straight Surgery	69411 69432 69433
*John Gaston Hospital +[1 3 4] X73 860 Madison Memphis	City	564	21,225	Req	56	12		35	36 Rotating General	
Methodist Hospital + 1265 Union Ave Memphis 4	Church	275	13,9 9	Req	33	12	261	75	12 Rotating General	69611
St. Joseph Hospital +[1 3] 261 Jackson Ave Memphis 7	Church	280	12 117	Req	34	12			12 Rotating General	69711
George W Hubbard Hospital +[1 3 4] X74 1005 18th Ave N Nashville 8	Church	197	4,354	Req	38	12		100	12 Rotating General	69811
Mid State Baptist Hospital +[1 3] 2000 Church St Nashville	State	250	10 463	Req	30	12		150	12 Rotating General	69911
St Thomas Hospital +[1-3] 2000 Hayes St Nashville 4	NPAssn	235	9,991	Req	31	12		175	6 Rotating General 2 Straight Medicine 2 Straight Surgery 1 Straight Pediatrics	70111 70132 70133 70134
Vanderbilt University Hospitals										
Nashville General Hospital +[1] Hermitage Ave. Nashville 10	City	221	5,349	Req	36	12	278	25	12 Rotating General	70011
Vanderbilt University Hospital +[1-3]-X75 21st Ave. South at Edgehill Nashville 5	NPAssn	371	10 401	Req	60	12	240	25	10 Straight Medicine 8 Straight Surgery 7 Straight Pediatrics 4 Straight Ob-Gyn 3 Straight Pathology	70232 70233 70234 70235 70236
TEXAS—Hospitals 21 Internships 304										
Brackenridge Hospital +[1]-x77 15th and East Ave Austin	City	200	7,142	Req	33	12		150	9 Rotating General	70411
Memorial Hospital [1 3] 2606 Hospital Blvd Corpus Christi	CyCo	224	8,645	Req	39	12	115	100	5 Rotating General	70511
Baylor University Hospital +[1 3]-x76 3500 Gaston Ave Dallas 1	Church	662	28,333	Req	28	12	188	90	25 Rotating General 1 Straight Medicine 1 Straight Surgery	70611 70632 70633
Methodist Hospital +[1 3]-x76 301 W Colorado St Dallas 5	Church	288	14 683	Req	22	12		100	12 Rotating General	70711
Parkland Hospital +[1-4]-X76 3819 Maple Ave Dallas	CyCo	357	9 028	Req	63	12		25	30 Rotating General 8 Straight Medicine	70811 70832
St Paul's Hospital +[1 3]-x76 3121 Bryan St Dallas 1	NPAssn	401	16,023	Req	36	12		100	13 Rotating General 1 Straight Medicine 1 Straight Surgery	70911 70932 70933
El Paso General Hospital [1] 4815 Alameda Ave El Paso	CyCo	230	4,234	Req	51	12		100	8 Rotating General	71011
City County Hospital +[1 3 4] 1500 S Main St Fort Worth 4	CyCo	200	4,652	Req	34	12		50	18 Rotating General	71111
Harris Hospital +[1 3] 1300 W Cannon Fort Worth 4	Church	310	15,210	Req	35	12		200	14 Rotating General	71211
St Joseph's Hospital +[1 3] 1401 Main St Fort Worth 4	Church	295	12,368	Req	25	12		200	12 Rotating General	71311
Univ of Texas Med Branch Hospitals +[1 3 4]-X77 800 Avenue B Galveston	State	683	11,978	Req	58	12		50	36 Rotating General	71411
Hermann Hospital +[1]-X78 1203 Ross Sterling Ave Houston 25	NPAssn	625	27,230	Req	39	12		75	17 Rotating General	71511
Jefferson Davis Hospital +[1 4] X78 1801 Buffalo Dr Houston 3	CyCo	490	13,822	Req	43	12		50	30 Rotating General	71611
Methodist Hospital +[1 3]-X78 6516 Bertner Ave Houston 25	Church	285	15 055	Req	58	12		100	8 Rotating General	71711
St Joseph's Hospital +[3] 1910 Crawford St Houston 3	Church	434	23 730	Req	41	12		100	6 Rotating General	71811
Baptist Memorial Hospital +[1 3]-x77 205 Camden St San Antonio	Church	268	14,030	Req	34	12		150	8 Rotating General	72111
Robert B Green Memorial Hospital +[1 3 4] x77 515 Morales St San Antonio 7	CyCo	125	5,828	Req	49	12		100	16 Rotating General	72211
Santa Rosa Hospital +[3] 745 W Houston St San Antonio 7	NPAssn	325	13,585	Req	42	12		100	14 Rotating General	72311
Kings Daughters Hospital +[1 3] 302 S 22d St Temple	NPAssn	110	2 574	Req	24	12			4 Rotating General	72411
Scott and White Memorial Hospitals +[1 3 4] 213 W Avenue G Temple	NPAssn	237	7,555	Req	35	12	243	150	8 Rotating General	72511
Providence Hospital [1 3] 1725 Colcord St Waco	Church	210	6,518	Req	30	12	116	150	4 Rotating General	[illegible]
UTAH—Hospitals 6 Internships 65										
St Benedict's Hospital +[1 3] 3000 Polk Ave Ogden	Church	170	5 751	Req	54	12		150	6 Rotating General	72711
Thomas D Dee Memorial Hospital +[1 3]-x79 2410 Harrison Blvd Ogden	Church	215	10,865	Req	67	12	244	150	12 Rotating General	72511
Dr W H Groves Latter Day Saints Hosp +[1 3]-x79 325 8th Ave Salt Lake City 3	Church	342	16,860	Req	42	12			16 Rotating General	72911
Holy Cross Hospital +[1 3]-x79 1045 E First South St Salt Lake City 2	Church	186	8 721	Req	51	12		150	6 Rotating General	73011
St Mark's Hospital +[1 3]-x79 803 N 2d West Salt Lake City 3	Church	227	9,840		37	12		150	6 Rotating General	73111
Salt Lake County General Hospital +[1 3]-X79 2033 S State St Salt Lake City 15	County	249	3,923	Req	63	12	245	100	12 Rotating General 4 Straight Medicine 3 Straight Pediatrics	73211 73232 73234
VERMONT—Hospitals 2 Internships 20										
Bishop DeGoesbriand Hospital +[1 3 4]-X80 8 Prospect St Burlington	Church	200	6,855	Req	36	12		100	8 Rotating General	73411
Mary Fletcher Hospital +[1 3 4]-X80 Colchester Ave Burlington	NPAssn	273	7 071	Req	65	12		50	12 Rotating General	73511

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VIRGINIA—Hospitals, 17, Internships, 166										
Alexandria Hospital +1 2 709 Duke St, Alexandria	NPAssn	189	8,195	Req	41	12		125	8 Rotating General	73611
University of Virginia Hospital +1 2-X81 Charlottesville	State	487	13,961	Req	52	12	247	50	12 Rotating General 12 Straight Medicine	73711 73732
Chesapeake and Ohio Hospital + Ridgeway St, Clifton Forge	NPAssn	160	6,709		43				4 Straight Medicine	69232
Memorial Hospital +1 2 142 S Main St, Danville	NPAssn	170	8,600	None	46	12		150	6 Rotating General	69311
Lynchburg General Hospital +1-2 Lynchburg	NPAssn	155	5,993	Req	35	12	287	125	1 Rot (Medical Major) 1 Rot (Surgical Major)	73812 73813
Mary Immaculate Hospital +1 2 Blair and Buxton Ave, Newport News	State	150	4,675	Req	43	12		150	5 Rotating General	69111
Riverside Hospital +1 2 [illegible] 50th St, Newport News	NPAssn	212	9,597	Req	38	12		200	4 Rotating General 1 Rot (Medical Major) 1 Rot (Surgical Major) 1 Rot (Ped Major) 1 Rot (Ob Gyn Major)	73911 73912 73913 73914 73915
DePaul Hospital +1-2 Kingsley Lane, Norfolk 5	Church	250	11 198	Req	51	12		150	10 Rotating General	74011
Norfolk General Hospital +1 2 Raleigh and Colley Aves, Norfolk 7	NPAssn	810	10,024	Req	52	12		125	12 Rotating General 1 Rot (Medical Major) 1 Rot (Surgical Major) 1 Rot (Ped Major) 1 Rot (Ob Gyn Major)	74111 74112 74113 74114 74115
Johnston Willis Hospital +1-2 [illegible] Kensington Ave, Richmond 21	Corp	225	8,020	Req	50	12	144	200	12 Rotating General	74211
Medical College of Virginia Hospital Div +1-2 4-X82 (Memorial, Dooley and St Philip Hospitals) 1200 E Broad St, Richmond 19	State	871	20,104	Req	81	12	270	60	38 Rotating General 2 Straight Medicine 2 Straight Surgery	74311 74332 74333
Stuart Circle Hospital 1 2 413 Stuart Circle, Richmond	Corp	114	3,663	Req	34	12	144	200	4 Rotating General	74411
Jefferson Hospital +1-2 1301 1321 Franklin Rd, Roanoke	Corp	141	5,632	Req	40	12		150	4 Mixed (Surg Med Ob)	74611
Lewis Gale Hospital +1 2 Third and Luck Ave, S W, Roanoke	Corp	180	7,787	Req	51	12		200	6 Rotating General	74711
Memorial and Crippled Children's Hospital 1 2 Belleview and Lake Aves, Roanoke	NPAssn	130	5,556	Req	47	12		150	6 Rotating General	74811
Louise Obici Memorial Hospital + P O Box 27, Suffolk	NPAssn	151	4,518	Req	81	12		200	8 Rotating General	92811
Winchester Memorial Hospital 1 S Stewart St, Winchester	NPAssn	251	7,550	Req	41	12		100	6 Rotating General	74911
WASHINGTON—Hospitals, 12, Internships, 143										
Doctors Hospital +1 2-x83 909 University St, Seattle 1	NPAssn	200	8,557	None	65	12	145	75	8 Rotating General	75111
King County Hospital +1 4-X83 Unit No 1 (Harborview) 325 Ninth Ave, Seattle 4	County	500	11,394	Req	54	12		50	30 Rotating General 4 Straight Medicine	75211 75233
Providence Hospital +1-x83 17th and E Jefferson, Seattle 22	Church	355	13,798	Req	56	12			16 Rotating General	75311
Seattle General Hospital 1-2 Fifth Ave at Marion St, Seattle 4	NPAssn	116	5,190	Req	34	12	145	150	5 Rotating General	75411
Swedish Hospital +1-x83 803 Summit Ave, Seattle 4	NPAssn	330	14 751	Req	53	12	145	75	16 Rotating General	75511
Virginia Mason Hospital +1 2-x83 1101 Terry Ave, Seattle 1	NPAssn	208	10,303	Req	70	12	145	75	10 Rotating General	75611
Deaconess Hospital +1-2 733 W Fourth Ave, Spokane	Church	200	9,392	Req	60	12		125	10 Rotating General	75711
Sacred Heart Hospital +1 2 101 W Eighth Ave, Spokane 4	Church	503	22 660	Req	30	12		125	12 Rotating General	75811
St Luke's Hospital +1-2 830 N Summit Blvd, Spokane 11	NPAssn	315	7,381	Req	42	12	190	125	8 Rotating General	75911
Pierce County Hospital 1-2 3582 Pacific Ave, Tacoma 8	County	240	4,381	Req	38	12		200	10 Rotating General	76011
St Joseph Hospital +1-2 1812 S Eye St, Tacoma 3	Church	218	8,262	Req	69	12		150	6 Rotating General	76111
Tacoma General Hospital +1-2 315 S K St, Tacoma 3	NPAssn	225	9,043	Req	44	12	248	250	8 Rotating General	76211
WEST VIRGINIA—Hospitals, 7, Internships, 54										
Charleston General Hospital +1 2 Brooks St and Elmwood Ave, Charleston 25	NPAssn	26	8,347	Req	49	12			10 Rotating General	76411
Kanawha Valley Hospital +1 2 1011 Virginia St E, Charleston 1	Corp	153	5,590	Req	25	12		130	4 Rotating General	76511
Memorial Hospital +1-2 3200 Noyes Ave, S E, Charleston 4	NPAssn	230	7,388	Req	56	12			4 Rotating General 1 Rotating (Med Major) 1 Rotating (Surg Maj) 1 Rotating (Ped Major) 1 Rot (Ob Gyn Major)	90211 90212 90213 90214 90215
St Mary's Hospital +1-2 2900 First Ave, Huntington 2	Church	300	13,337	Req	63	12		130	10 Rotating General	76611
Camden Clark Memorial Hospital 1-2 717 Ann St, Parkersburg	City	160	5 962	None	22	12		150	4 Rotating General	76711
Ohio Valley General Hospital +1-2 2000 Eoff St, Wheeling	NPAssn	319	10,534	Req	85	12		250	10 Rotating General	76911
Wheeling Hospital 1 2 4 109 Main St, Wheeling	Church	245	9,441	Req	18	12		200	8 Rotating General	77011
WISCONSIN—Hospitals, 22, Internships, 202										
Luther Hospital 1 2 x84 310 Chestnut St, Eau Claire	NPAssn	210	7,209	Req	86	12		200	6 Rotating General	77111
Mercy Hospital +1 2-x84 [illegible] N Washington St, Janesville	Church	200	6,632	Req	30	12		150	5 Rotating General	77311
La Crosse Lutheran Hospital +1 2-x84 1910 South Ave, La Crosse	Church	160	5,752	Req	51	12		200	4 Rotating General	77411
St Francis Hospital 1-2-x84 10th and Market St, La Crosse	Church	280	9,257	None	83	12		200	8 Rotating General	77511
Madison General Hospital +1 2 [illegible] Mound St, Madison 5	NPAssn	251	8,430	None	42	12		125	9 Rotating General	77611
Methodist Hospital +1 2 309 W Washington Ave, Madison 3	Church	143	5,218	Req	44	12		150	4 Rotating General	77711

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges and other cooperating organizations

Abbreviations and other references will be found on pages 344 and 345

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
WISCONSIN—Continued										
St Mary's Hospital +1 3 720 S Brooks St Madison 5	Church	240	9,368	Req	42	12		125	10 Rotating General	77811
University Hospitals +1 3 X84 1300 University Ave, Madison 6	State	900	13,974	Req	72	12		50	25 Rotating General	77911
St Joseph's Hospital +1-x84 St Joseph's St Marshfield	State	250	7 784	Req	43	12		250	7 Rotating General	78011
Columbia Hospital +1 3 3321 N Maryland Ave Milwaukee 11	NPAssn	245	7 153	Req	64	12	249	170	10 Rotating General	78111
Evangelical Deaconess Hospital +1 3 1621 W Wisconsin Ave Milwaukee 3	Church	138	7,335	None	62	12	118	150	8 Rotating General	78211
Milwaukee Children's Hospital +1 3-x85 721 N 17th St Milwaukee 3	NPAssn	160	5,525	Req	78	12	275	125	2 Straight Pediatrics	78334
Milwaukee County Hospital +1 3 4 X85 8700 W Wisconsin Ave Milwaukee 13	County	900	22,846	Req	27	12		143	25 Rotating General	78411
Milwaukee Hospital +1 3-x85 2200 W Kilbourn Ave Milwaukee 3	Church	301	10 742	Req	69	12	140	125	9 Rotating General	78511
Misericordia Hospital 1 3 1255 N 22d St Milwaukee 3	Church	175	5 653	Req	57	12	118	200	5 Rotating General	89711
Mount Sinai Hospital +1-3 908 N 12th St Milwaukee 3	NPAssn	197	8 797	Req	40	12	116	200	12 Rotating General	78711
St Joseph's Hospital +1-x85 5000 W Chambers St Milwaukee 10	Church	371	15 192	Req	56	12	191	125	16 Rotating General	78811
St. Luke's Hospital +1-3 Oklahoma Ave and S 29th St Milwaukee 15	NPAssn	312	11 700	Req	43	12	250	200	13 Rotating General	78911
St Mary's Hospital +1 3 2320 N Lake Dr Milwaukee 11	NPAssn	235	8 463	Req	59	12	277	150	10 Rotating General	79011
St Michael's Hospital +1 3 1845 N Fourth Milwaukee 12	Church	137	5 095	Req	32	12	275	150	6 Rotating General	79111
Mercy Hospital 1 185 Hazel St Oshkosh	Church	216	7 069	None	24	12		250	4 Rotating General	79311
St. Mary's Hospital 1-x84 Maple Hill Wausau	Church	230	8,811	None	81	12		150	4 Rotating General	79511
CANAL ZONE—Hospitals 1 Internships 12										
Gorgas Hospital +3 Ancon Personnel Director Panama Canal Company, Balboa Heights	Fed	400	6,550	Req	77	12		$140.80 US citizens (annual) 2516.80 alien citizens (annual)	12 Rotating General	80611
HAWAII—Hospitals 2 Internships 22										
Queen's Hospital +1 Punchbowl and Miller Sts Honolulu 0	NPAssn	358	13,801	Req	62	12		75	13 Rotating General	80811
St. Francis Hospital +1 3 2260 Liliha St Honolulu 17	Church	226	8 448	Req	50	12		75	9 Rotating General	80911
PUERTO RICO—Hospitals 5 Internships 52										
*Arecibo District Hospital 1 3 Arecibo	State	298	6 018	Req	58	12	251	75	10 Rotating General	
*Bayamon Charity District Hospital +1 3 Insular Highway No 2 Bayamon	State	266	7,354	Req	76	12		75	12 Rotating General	
*Fajardo District Hospital 1 General Valero Ave Fajardo	State	300	5 692	Req	83	12	251	75	8 Rotating General	
*Presbyterian Hospital 1 3-x86 Ashford Ave San Juan 1	NPAssn	130	3,914	None	30	12		50	6 Rotating General	
*San Juan City Hospital +1-3-X86 De Diego Ave San Juan 31	City	340	9 469	Req	44	12		75	16 Rotating General	

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program sponsored by the American Medical Association the American Hospital Association the Association of American Medical Colleges and other cooperating organizations

Abbreviations and other references will be found on pages 344 and 345

HOSPITALS APPROVED FOR INTERNSHIPS IN THE DOMINION OF CANADA

The following list of hospitals which conform to the standards of the Canadian Medical Association is published for the information of graduates interested in an internship appointment in a Canadian hospital Hospitals that are unqualifiedly approved as conforming to the standards of the Canadian Medical Association *may be considered as offering internships* equivalent in educational value *to those in hospitals approved for intern* training by the Council.

This list revised to Sept 1 1954 was furnished by the Canadian Medical Association

Name of Hospital	Location
St John's General Hospital	St John's Nfld
Camp Hill Hospital	Halifax N S
Halifax Infirmary	Halifax N S
Victoria General Hospital	Halifax N S
Moncton Hospital	Moncton N B
Saint John General Hospital	Saint John N B
Hotel Dieu St Vallier	Chicoutimi Que
Children's Memorial Hospital	Montreal Que
Herbert Reddy Memorial Hosp	Montreal Que
Hospital Sainte-Jeanne-d Arc	Montreal Que
Hospital Sainte-Justine	Montreal Que
Hospital Saint Luc	Montreal Que
Hotel Dieu de Montreal	Montreal Que
Jewish General Hospital	Montreal Que
Montreal General Hospital	Montreal Que.
Notre-Dame Hospital	Montreal Que
Queen Elizabeth Hospital	Montreal Que
Queen Mary Veteran's Hospital	Montreal, Que
Royal Victoria Hospital	Montreal Que
St Mary's Hospital	Montreal Que.
Hospital de l Enfant Jesus	Quebec Que
Jeffery Hale's Hospital	Quebec Que
L Hotel Dieu Quebec	Quebec Que.
Saint Sacrement Hospital	Quebec Que
Veteran's Hospital	Quebec Que
Ste Anne's Hospital.	Ste Anne de Bellevue Que.
Sherbrooke Hospital	Sherbrooke Que.
Hospital General de Verdun	Verdun Que
Brantford General Hospital	Brantford Ont
McKellar General Hospital	Fort William Ont
Hamilton General Hospital	Hamilton Ont
St Joseph's Hospital	Hamilton Ont.
Hotel Dieu Hospital	Kingston Ont.
Kingston General Hospital	Kingston Ont
Kitchener Waterloo Hospital	Kitchener Ont
St Joseph's Hospital	London Ont.
Victoria Hospital	London Ont
Westminster Hospital	London Ont.
Oshawa General Hospital	Oshawa Ont
Ottawa Civic Hospital	Ottawa Ont
Ottawa General Hospital	Ottawa Ont
Peterborough Civic Hosp	Peterborough Ont
General Hosp of Port Arthur	Port Arthur Ont
St Catharines Gen Hosp	St Catharines Ont
Hospital for Sick Children	Toronto Ont.
Mount Sinai Hospital	Toronto Ont
St Joseph's Hospital	Toronto Ont.
St Michael's Hospital	Toronto Ont.
Sunnybrook Veterans Hospital	Toronto Ont.
Toronto East Gen Hosp	Toronto Ont
Toronto General Hospital	Toronto Ont
Toronto Western Hospital	Toronto Ont.
Women's College Hospital	Toronto Ont.
Grace Hospital	Windsor Ont.
Hotel Dieu of St Joseph	Windsor Ont.
Metropolitan Hospital	Windsor Ont
St Boniface Gen Hosp	St Boniface Man
Children's Hospital	Winnipeg Man.
Deer Lodge Hospital	Winnipeg Man
Misericordia Hospital	Winnipeg Man
Winnipeg General Hospital	Winnipeg Man
Regina General Hospital	Regina Sask.
Regina Grey Nuns Hospital	Regina Sask.
St Paul's Hospital	Saskatoon Sask.
Saskatoon City Hospital	Saskatoon Sask.
Calgary General Hospital	Calgary Alta
Colonel Belcher Hospital	Calgary Alta
Holy Cross Hospital	Calgary Alta
Edmonton General Hospital	Edmonton Alta
Misericordia Hospital	Edmonton Alta
Royal Alexandra Hospital	Edmonton Alta
University of Alberta Hospital	Edmonton Alta.
Royal Columbian Hosp	New Westminster B C
St Paul's Hospital	Vancouver B C
Shaughnessy Hospital	Vancouver B C
Vancouver General Hospital	Vancouver B C
Royal Jubilee Hospital	Victoria B C
St Joseph's Hospital	Victoria B C
Veterans Hospital	Victoria B C

ABBREVIATIONS AND NOTES

1 Appointments available to women applicants
2 Appointments restricted to women applicants
3 Appointments available to graduates of foreign medical schools Details regarding requirements for appointment can be secured from the hospitals concerned
4 Dental internships available
5 Available to citizens of the United States only
6 General Practice internships
+ The plus sign indicates additional approval for residencies in specialties, as shown in the Council's list of Approved Residencies and Fellowships

CyCo	City and County
Corp	Corporation unrestricted as to profit
NPAssn	Nonprofit association
Part	Partnership
Op	Optional
Req	Required

Medical School Affiliations

Footnotes 10 to 86 refer to medical schools affiliated with hospitals for undergraduate clinical clerkships

Hospitals have been identified with symbol X when a medical school has indicated that the hospital is a major unit in the school's teaching program

Hospitals have been identified with symbol x when a medical school has indicated that the hospital is used to a limited extent in the school's teaching program

10 Medical College of Alabama, Birmingham Ala
11 University of Arkansas School of Medicine Little Rock, Ark
12 College of Medical Evangelists School of Medicine, Loma Linda, Los Angeles Calif
13 University of California at Los Angeles School of Medicine, Los Angeles Calif
14 University of Southern California School of Medicine, Los Angeles, Calif
15 Stanford University School of Medicine, San Francisco, Calif
16 University of California School of Medicine San Francisco, Calif
17 University of Colorado School of Medicine Denver, Colo
18 Yale University School of Medicine New Haven, Conn
19 Georgetown University School of Medicine, Washington, D C
20 George Washington University School of Medicine, Washington, D C
21 Howard University College of Medicine Washington, D C
22 Emory University School of Medicine Atlanta (Emory University), Ga
23 Medical College of Georgia Augusta Ga
24 Chicago Medical School Chicago, Ill
25 Northwestern University Medical School Chicago, Ill
26 Stritch School of Medicine of Loyola University, Chicago, Ill
27 University of Chicago Medical School Chicago, Ill
28 University of Illinois College of Medicine, Chicago, Ill
29 Indiana University School of Medicine, Bloomington Indianapolis, Ind
30 State University of Iowa College of Medicine, Iowa City, Iowa
31 University of Kansas School of Medicine, Lawrence Kansas City, Kan
32 University of Louisville School of Medicine Louisville Ky
33 Louisiana State University School of Medicine New Orleans, La
34 Tulane University of Louisiana School of Medicine New Orleans, La
35 Johns Hopkins University School of Medicine Baltimore Md
36 University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, Md
37 Boston University School of Medicine, Boston, Mass
38 Harvard Medical School, Boston, Mass
39 Tufts College Medical School, Boston Mass
40 University of Michigan Medical School, Ann Arbor, Mich
41 Wayne University College of Medicine, Detroit, Mich
42 University of Minnesota Medical School, Minneapolis, Minn
43 St Louis University School of Medicine, St Louis, Mo
44 Washington University School of Medicine, St Louis, Mo
45 Creighton University School of Medicine, Omaha, Neb
46 University of Nebraska College of Medicine, Omaha Neb
47 Dartmouth Medical School, Hanover, N H
48 Albany Medical College, Albany, N Y
49 University of Buffalo School of Medicine, Buffalo, N Y
50 Columbia University College of Physicians and Surgeons, New York, N Y
51 Cornell University Medical College, New York, N Y
52 New York Medical College, New York, N Y
53 New York University College of Medicine, New York, N Y
54 State University of New York College of Medicine at New York City, Brooklyn, N Y
55 University of Rochester School of Medicine and Dentistry, Rochester, N Y
56 State University of New York at Syracuse College of Medicine, Syracuse, N Y
57 University of North Carolina School of Medicine, Chapel Hill, N C
58 Duke University School of Medicine Durham, N C
59 Bowman Gray School of Medicine of Wake Forest College, Winston Salem, N C
60 University of Cincinnati College of Medicine, Cincinnati, Ohio
61 Western Reserve University School of Medicine, Cleveland Ohio
62 Ohio State University College of Medicine, Columbus, Ohio
63 University of Oklahoma School of Medicine, Oklahoma City, Okla
64 University of Oregon Medical School, Portland, Ore
65 Hahnemann Medical College and Hospital of Philadelphia, Philadelphia, Pa
66 Jefferson Medical College of Philadelphia, Philadelphia, Pa
67 Temple University School of Medicine, Philadelphia, Pa
68 University of Pennsylvania School of Medicine, Philadelphia, Pa
69 Woman s Medical College of Pennsylvania Philadelphia, Pa
70 University of Pittsburgh School of Medicine, Pittsburgh, Pa
71 Medical College of the State of South Carolina Charleston, S C
72 University of South Dakota School of Medicine, Vermillion, S D
73 University of Tennessee College of Medicine, Memphis, Tenn
74 Meharry Medical College, Nashville Tenn
75 Vanderbilt University School of Medicine, Nashville, Tenn
76 Southwestern Medical School of the University of Texas Dallas, Texas
77 University of Texas School of Medicine, Galveston, Texas
78 Baylor University College of Medicine, Houston, Texas
79 University of Utah School of Medicine, Salt Lake City, Utah
80 University of Vermont College of Medicine, Burlington, Vt
81 University of Virginia School of Medicine, Charlottesville Va
82 Medical College of Virginia, Richmond, Va
83 University of Washington School of Medicine, Seattle, Wash
84 University of Wisconsin Medical School Madison, Wis
85 Marquette University School of Medicine, Milwaukee, Wis
86 University of Puerto Rico School of Medicine, San Juan, Puerto Rico

Affiliation as Referred to in Column Headed "Affiliated Service"

100 Our Lady of Angels Hospital, Ob , Escambia General Hospital, Pensacola, Fla
101 Creighton University Hospital, Omaha
102 Arkansas Children s Hospital, Little Rock
103 Athens General Hospital, Athens, Ga
104 Hartford Hospital, Hartford
105 St Joseph s Infirmary Louisville
106 Confederate Memorial Hospital, Shreveport
107 Hurley Hospital, Genesee County Tuberculosis Sanatorium, Flint
108 Saginaw County Tuberculosis Hospital, Saginaw
109 Ancker Hospital Charles T Miller Hospital, St Paul
110 Children s Mercy Hospital, Kansas City, Mo
111 Chemung County T B Sanatorium, Elmira, N Y
112 Charles V Chapin Hospital, Providence
113 Royal C Johnson Veterans Hospital, Sioux Falls
114 Knoxville General Hospital, Knoxville
115 Driscoll Children's Hospital, Corpus Christi
116 City County Clinic, Fort Worth
117 Macon County TB Sanatorium, City Public Hospital, Decatur, Ill
118 Milwaukee Children s Hospital, Milwaukee
119 Pima County General Hospital, Tucson
120 Riverside Community Hospital, Anes , Riverside, Calif
121 Alexian Brothers Hospital, St Louis
122 St Louis Maternity Hospital St Louis County Hospital, St Louis, Burge Hospital Springfield, Mo
123 Pine Ridge Hospital, West Palm Beach
124 Holy Cross Hospital, Ob Gyn , Chicago, Alexian Brothers Hospital Psych , St Louis
125 Children s Hospital Mary s Help Hospital San Francisco
126 University of Colorado Medical Center, Denver
127 Children s Hospital Denver
128 Variety Children s Hospital, Ped , National Children's Cardiac Home, Card , Miami
129 Grady Memorial Hospital, Atlanta
130 Women and Children s Hospital, Chicago
131 Children's Hospital, Louisville
132 Children s Hospital, City of Detroit Receiving Hospital, Detroit
133 Children's Hospital, Detroit
134 Miller Memorial Hospital, Duluth
135 Children s Hospital, St Paul
136 St Louis Children s Hospital St Louis
137 Douglas County Hospital, Omaha St Bernard s Hospital Psych Council Bluffs Iowa
138 Children s Hospital Ped , Cincinnati

139 Children's Hospital Columbus Ohio
140 Milwaukee Children's Hospital South View Hospital Salvation Army Martha Washington Home and Hospital, Milwaukee
141. Santa Monica Hospital Santa Monica
142. Children's Hospital Los Angeles
143. E J Meyer Memorial Hospital Buffalo
144 Medical College of Virginia Richmond
145. Children's Orthopedic Hospital Seattle
146 University of California Hospital Ped , Los Angeles
147 Children's Hospital Birmingham
148 University Hospital Little Rock
149 Boulder Colorado Sanitarium Boulder County Hospital Denver
150 Sedgwick County Hospital Wichita
151. Maricopa County Hospital Phoenix
152. Mercy Hospital Ped Chicago
153. Indianapolis General Hospital Indianapolis
154. St. Vincent's Infirmary Ob Gyn Little Rock
155 Fairmont Hospital of Alameda County Oakland
156. Kaiser Foundation Hospitals at Walnut Creek Vallejo and San Francisco Calif
157 Children's Hospital Washington D C
158. Frank Cuneo Hospital Chicago
159 University Hospital Baltimore
160 Union Memorial Hospital, Ped Baltimore
161. Johns Hopkins Hospital Baltimore
162. Peter Bent Brigham Hospital New England Deaconess Hospital, Boston
163. Wesson Maternity Hospital Springfield Mass
164. Herman Kiefer Hospital Detroit
165. Herman Kiefer Hospital Woman's Hospital, Detroit
166 D C General Hospital Washington D C
167 Evangeline Home and Hospital Ob Cardiac Clinic Ped , Grand Rapids
168 Children's Hospital, Detroit
169 Saginaw County Hospital Saginaw County Infirmary Hospital, Saginaw County T B Sanatorium Saginaw
170 Guadalupe Center St. Francis Home Saginaw
171 D C General Hospital Children's Hospital, Washington D C
172. Beyer Memorial Hospital, Ypsilanti Saginaw General Hospital Saginaw Hurley Hospital, Flint Midland Hospital Midland Mich
173 Jersey City Hospital Jersey City
174 Los Angeles County Hospital Los Angeles
175. Harbor General Hospital Torrance Calif
176. Los Angeles County Hospital Los Angeles Orange County General Hospital Orange Calif
177 Los Angeles County Hospital Los Angeles St. John's Hospital and Santa Monica Hospital Santa Monica
178 Woman's Hospital Pasadena Dispensary Pasadena
179 St Joseph's Hospital San Francisco Hospital Children's Hospital St Mary's Hospital San Francisco
180 Children's Hospital San Francisco
181 Cleveland City Hospital Cleveland
182. Toledo State Hospital William W Roche Memorial Hospital Contagious Disease Hospital Toledo
183. University Hospitals Oklahoma City
184. Hospital of the University of Pennsylvania Philadelphia
185 Presbyterian Hospital Philadelphia
186 Providence Lying in Hospital, Providence
187 East Tennessee T B Hospital Knoxville
188 Children's Medical Center Ped Dallas
189 Children's Hospital Baylor University Hospital Dallas
190 Booth Memorial Hospital *Shriners Hospital for Crippled Children*, Spokane
191. Milwaukee County Hospital St. Michael's Hospital Milwaukee
192. American Legion Crippled Children's Hospital, St. Petersburg
193 Elizabeth Steel Magee Hospital Children's Hospital, Pittsburgh
194. Ingham County T B Sanatorium Lansing
195. Children's Memorial Hospital Douglas County Hospital, Omaha
196. Kingston Avenue Hospital Brooklyn
197 Children's Hospital Buffalo
198. Emergency Hospital Buffalo
199 Jewish Hospital Ob Brooklyn
200 Lincoln Hospital, New York City
201. Children's Hospital Ped Akron
202. City Health Clinic, Toledo Children's Hospital and Columbus Receiving Hospital Columbus
203. Winfield Sanatorium Winfield Ill.
204 St. Louis City Hospital, Ped St. Louis
205 St. Louis City Hospital Med St. Louis
206 Douglas County Hospital Omaha
207 Children's Seashore Home Betty Bacharach Home Clyde Fish Memorial Hospital Atlantic City
208. Babies Hospital-Colt Memorial Harrison S Martland Medical Center Newark
209 Binghamton State Hospital, Binghamton N Y
210 Santa Barbara General Hospital Santa Barbara
211 Variety Children's Hospital Miami
212. Emory University Hospital Emory University, Grady Memorial Hospital Atlanta
213. Children's Memorial Hospital Chicago
214 John Gaston Hospital LeBonheur Children's Hospital, Memphis
215. Children's Hospital Jewish Hospital Louisville
216. Our Lady of Peace Hospital Louisville
217 Charity Hospital, New Orleans
218. St. Margaret's Hospital Ob Dorchester Mass.
219 Fall River General Hospital, Fall River Mass.
220 Cooley Dickinson Hospital Northampton Mass.
221 Veterans Admin Hospital Providence
222. Minneapolis General Hospital Minneapolis
223. Mississippi State Charity Hospital, Vicksburg
224 Immanuel Hospital Children's Memorial Hospital Douglas County Hospital Omaha
225 Margaret Hague Maternity Hospital, Jersey City
226 Margaret Hague Maternity Hospital, Jersey City St Mary's Hospital Ped Hoboken
227 Kenmore Mercy Hospital Buffalo
228 Children's Memorial Hospital Chicago
229 Broadlawns Polk County Hospital, Des Moines
230 McLaren General Hospital Flint
231 St. Louis City Hospital St. Louis Children's Hospital, St. Louis
232. U S Naval Hospital San Diego
233 Lincoln Hospital McPherson Hospital E.E.N T Watts Hospital, Ped Psych Veterans Admin Hospital Durham N C Veterans Admin Hospital, Psych., Roanoke Va Fort Bragg Hospital, Ped Fort Bragg N C Shriner's Hospital for Crippled Children, Ortho., Greenville S C North Carolina Orthopedic Hospital, Ortho., Gastonia N C Armed Forces Institute of Pathology, Ortho., Washington, D C Charlotte Memorial Hospital, Ortho., Charlotte N C Warm Springs Foundation, Ortho., Warm Springs Ga Alfred I Dupont Institute Ortho., Wilmington, Del.
234. Boston Lying in Hospital, Boston
235 Roosevelt Hospital, New York City
236 Misericordia Hospital Ob Ped., Gyn., New York City
237 Cincinnati General Hospital Ped. Cincinnati
238. St. Ann's Maternity Hospital, Cleveland
239 Elizabeth Steel Magee Hospital Children's Hospital Eye and Ear Hospital Pittsburgh
240 Nashville General Hospital, Nashville
241 Jefferson Davis Hospital Houston
242. Parkland Hospital Children's Hospital, Dallas
243 Gulf Colorado and Santa Fe Railroad Hospital Temple
244 Utah State T B Sanatorium Ogden
245 Veterans Admin Hospital Salt Lake City
246 Salt Lake County General Hospital, Salt Lake City
247 Blue Ridge Sanatorium Charlottesville Lynchburg General Hospital Lynchburg Kings Daughters Hospital, Staunton, Va
248. University of Washington Infirmary Seattle Pierce County Hospital Tacoma
249 Milwaukee Children's Hospital South View Hospital, Milwaukee
250 Milwaukee County Hospital, Milwaukee
251. Bayamon District Hospital Path. Bayamon P R.
252 Margaret Hague Maternity Hospital Jersey City Hospital, Jersey City
253 Municipal Contagious Hospital Presbyterian Hospital, Chicago
254 Boston Floating Hospital Boston
255 Children's Memorial Hospital, Omaha
256 Bellevue Medical Center New York City
257 Strong Memorial Hospital, Rochester N Y
258. Norristown State Hospital, Norristown Pa.
259. Children's Hospital, Ped., Philadelphia
260 Wernersville State Hospital, Wernersville Berks County Sanatorium Reading
261. Memphis E E N and T Hospital West Tennessee T B Hospital, Memphis
262. Laguna Honda Home Hassler Health Home, San Francisco
263. University Hospital, Ann Arbor Mich
264 Harper Hospital Detroit
265 Children's Hospital Detroit
266 Children's Hospital Edward J Meyer Memorial Hospital, Buffalo
267 Good Samaritan Hospital Cincinnati
268 Children's Hospital St. Francis Hospital Columbus Receiving Hospital Ohio T B Hospital, Columbus
269 Lima State Hospital, Neuro Psych. Lima
270 University Hospitals Mercy Hospital Oklahoma City
271 Theo B Wilcox Memorial Hospital, Portland
272. St Joseph's Hospital, Vancouver Wash.
273. Geneva General Hospital Geneva N Y
274 Valley View Hospital, Clinton Mercy Hospital St. Anthony's Hospital, Oklahoma City St John's Hospital, Tulsa
275 South View Hospital, Milwaukee
276 St. Elizabeth's Hospital and St. Luke's Hospital, Richmond Northampton Accomack Memorial Hospital, Nassawadox Mary Washington Hospital Fredericksburg Southside Community Hospital, Farmville Raiford Memorial Hospital Franklin
277 Milwaukee Children's Hospital Milwaukee County Emergency Hospital Milwaukee
278 Robert Breck Brigham Hospital, Boston, Mass
279 U S Army Hospital, Seattle Tacoma Indian Hospital, Tacoma
280 Colorado General Hospital Denver
281. Children's Memorial Hospital Chicago Maternity Center Chicago
282. Anthony N Brady Maternity Hospital, Albany
283 Providence Hospital, Ped City Isolation Hospital, Portland
284 St. Christopher's Hospital for Children Philadelphia
285 California Hospital, Los Angeles
286 T C Thompson Children's Hospital, Chattanooga
287 University of Virginia Hospital, Charlottesville
288 Haynes Memorial Hospital, Brighton Mass
289 Watts Hospital, Durham Robeson County Memorial Hospital, Lumberton N C
290 Daniel Drake Memorial Hospital Dunham Hospital, Cincinnati
291. St. Luke's Hospital General Rose Hospital Presbyterian Hospital; St. Joseph's Hospital Denver
292. Eastern Maine General Hospital Bangor Central Maine General Hospital, Lewiston Boston Dispensary and Boston Floating Hospital Boston
293. Children's Hospital Emergency Hospital Washington D C.
294 Genesee Hospital Highland Hospital, Rochester
295. Northern Indiana Children's Hospital, South Bend
296 St. Elizabeth Hospital, Elizabeth
297 Memorial Hospital, New York City
298. University Hospital, New York City

APPROVED INTERNSHIPS BY TYPE OF SERVICE

ROTATING GENERAL

Number of Approved Programs, 794

FEDERAL

UNITED STATES ARMY

Letterman Army Hospital	San Francisco
Fitzsimons Army Hospital	Denver
Army Medical Center	Washington D C
Valley Forge Army Hospital	Phoenixville Pa
William Beaumont Army Hospital	El Paso Texas
Brooke Army Hospital	San Antonio, Texas
Madigan Army Hospital	Tacoma Wash
Tripler Army Hospital	Honolulu, T H

UNITED STATES NAVY

U S Naval Hospital	Oakland Calif
U S Naval Hospital	Oceanside, Calif
U S Naval Hospital	San Diego Calif
U S Naval Hospital	Jacksonville Fla
U S Naval Hospital	Pensacola, Fla
U S Naval Hospital	Great Lakes Ill
U S Naval Hospital	Bethesda Md
U S Naval Hospital	Chelsea, Mass
U S Naval Hospital	St Albans N Y
U S Naval Hospital	Philadelphia
U S Naval Hospital	Newport, R I
U S Naval Hospital	Charleston S C
U S Naval Hospital	Portsmouth Va
U S Naval Hospital	Bremerton, Wash

U S PUBLIC HEALTH SERVICE

U S Public Health Service Hospital	San Francisco
U S Public Health Service Hospital	New Orleans
U S Public Health Service Hospital	Baltimore
U S Public Health Service Hospital	Staten Island N Y
U S Public Health Service Hospital	Seattle

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Freedmen s Hospital	Washington, D C
St Elizabeth s Hospital	Washington, D C

VETERANS ADMINISTRATION

Veterans Admin Hospital	Little Rock Ark
Veterans Admin Hospital	Long Beach Calif
Veterans Admin Hospital	Los Angeles
Veterans Admin Hospital	Houston, Texas
Veterans Admin Hospital	Salt Lake City

NONFEDERAL

Birmingham Baptist Hospital	Birmingham, Ala
Carraway Methodist Hospital	Birmingham, Ala
Jefferson Hillman Hospital	Birmingham Ala
St Vincent s Hospital	Birmingham, Ala
South Highlands Infirmary	Birmingham, Ala
Lloyd Noland Hospital	Fairfield, Ala
Holy Name of Jesus Hospital	Gadsden Ala
City Hospital	Mobile Ala
Druid City Hospital	Tuscaloosa, Ala
Good Samaritan Hospital	Phoenix, Ariz
Maricopa County General Hospital	Phoenix, Ariz
Memorial Hospital	Phoenix Ariz
St Joseph s Hospital	Phoenix, Ariz.
St Mary s Hospital and Sanitorium	Tucson, Ariz
Tucson Medical Center	Tucson, Ariz
Arkansas Baptist Hospital	Little Rock, Ark
St Vincent s Infirmary	Little Rock, Ark
University Hospital	Little Rock Ark
General Hospital of Riverside County	Arlington, Calif
Kern General Hospital	Bakersfield, Calif
Herrick Memorial Hospital	Berkeley, Calif
San Joaquin General Hospital	French Camp Calif
General Hospital of Fresno County	Fresno Calif
Glendale Sanitarium and Hospital	Glendale Calif
Loma Linda Sanitarium and Hospital	Loma Linda, Calif
St Mary s Long Beach Hospital	Long Beach, Calif
Seaside Memorial Hospital	Long Beach, Calif
California Hospital	Los Angeles
Cedars of Lebanon Hospital	Los Angeles
Hospital of the Good Samaritan	Los Angeles
Los Angeles County Hospital	Los Angeles
Methodist Hospital of Southern California	Los Angeles
Presbyterian Hospital Olmsted Memorial	Los Angeles
Queen of Angels Hospital	Los Angeles
St Vincent s Hospital	Los Angeles
Santa Fe Coast Lines Hospital	Los Angeles
White Memorial Hospital	Los Angeles
Highland Alameda County Hospital	Oakland, Calif
Kaiser Foundation Hospital	Oakland, Calif
Orange County General Hospital	Orange, Calif
Collis P and Howard Huntington Memorial Hospital	Pasadena, Calif
Sacramento County Hospital	Sacramento, Calif
San Bernardino County Charity Hospital	San Bernardino, Calif
Mercy Hospital	San Diego, Calif

NONFEDERAL—Continued

San Diego County General Hospital	San Diego Calif
Children s Hospital	San Francisco
Franklin Hospital	San Francisco
French Hospital	San Francisco
Mary's Help Hospital	San Francisco
Mount Zion Hospital	San Francisco
St Joseph's Hospital	San Francisco
St Luke s Hospital	San Francisco
St Mary's Hospital	San Francisco
San Francisco Hospital	San Francisco
Southern Pacific General Hospital	San Francisco
University of California Hospital	San Francisco
Santa Clara County Hospital	San Jose, Calif
Santa Barbara Cottage Hospital	Santa Barbara, Calif
St John s Hospital	Santa Monica, Calif
Santa Monica Hospital	Santa Monica Calif
Harbor General Hospital	Torrance, Calif
Glockner Penrose Hospital	Colorado Springs Colo
General Rose Memorial Hospital	Denver
Mercy Hospital	Denver
Porter Sanitarium and Hospital	Denver
Presbyterian Hospital	Denver
St Anthony Hospital	Denver
St Joseph s Hospital	Denver
St Luke s Hospital	Denver
University of Colorado Medical Center	
Colorado General Hospital	Denver
Denver General Hospital	Denver
Weld County General Hospital	Greeley, Colo
Bridgeport Hospital	Bridgeport Conn
St Vincent s Hospital	Bridgeport Conn
Bristol Hospital	Bristol, Conn
Danbury Hospital	Danbury Conn
Greenwich Hospital	Greenwich, Conn
Hartford Hospital	Hartford Conn
J J McCook Memorial Hospital	Hartford, Conn
Mount Sinai Hospital	Hartford Conn
St Francis Hospital	Hartford Conn
Manchester Memorial Hospital	Manchester Conn
Meriden Hospital	Meriden Conn
Middlesex Hospital	Middletown, Conn
New Britain General Hospital	New Britain, Conn.
Hospital of St Raphael	New Haven, Conn
Lawrence and Memorial Associated Hospitals	New London Conn
Norwalk Hospital	Norwalk, Conn.
William W Backus Hospital	Norwich, Conn
Stamford Hospital	Stamford Conn
St Mary s Hospital	Waterbury, Conn
Waterbury Hospital	Waterbury, Conn
Delaware Hospital	Wilmington Del
Memorial Hospital	Wilmington, Del.
Wilmington General Hospital	Wilmington Del.
Central Dispensary and Emergency Hospital	Washington D C
District of Columbia General Hospital	Washington D C
Doctors Hospital	Washington, D C
Garfield Memorial Hospital	Washington D C
Providence Hospital	Washington D C
Sibley Memorial Hospital	Washington D C
Washington Sanitarium and Hospital	Washington D C
Duval Medical Center	Jacksonville, Fla.
St Luke s Hospital	Jacksonville Fla
St Vincent's Hospital	Jacksonville Fla
Jackson Memorial Hospital	Miami, Fla.
Mount Sinai Hospital	Miami Beach, Fla
St Francis Hospital	Miami Beach Fla.
Orange Memorial Hospital	Orlando, Fla.
Sacred Heart Hospital	Pensacola, Fla.
Mound Park Hospital	St Petersburg, Fla
Tampa Municipal Hospital	Tampa Fla
St Mary's Hospital	West Palm Beach Fla
Athens General Hospital	Athens, Ga
St Mary s Hospital	Athens Ga
Crawford W Long Memorial Hospital	Atlanta Ga.
Georgia Baptist Hospital	Atlanta, Ga.
Grady Memorial Hospital	Atlanta, Ga
Piedmont Hospital	Atlanta Ga
St Joseph s Infirmary	Atlanta Ga.
University Hospital	Augusta Ga
Columbus City Hospital	Columbus Ga
Macon Hospital	Macon Ga
MacNeal Memorial Hospital	Berwyn Ill.
Alexian Brothers Hospital	Chicago
American Hospital	Chicago
Augustana Hospital	Chicago
Chicago Wesley Memorial Hospital	Chicago
Columbus Hospital	Chicago
Cook County Hospital	Chicago
Edgewater Hospital	Chicago
Englewood Hospital	Chicago
Evangelical Hospital	Chicago
Garfield Park Community Hospital	Chicago
Grant Hospital	Chicago
Henrotin Hospital	Chicago
Holy Cross Hospital	Chicago
Hospital of St Anthony de Padua	Chicago
Illinois Central Hospital	Chicago
Illinois Masonic Hospital	Chicago
Jackson Park Hospital	Chicago
Loretto Hospital	Chicago
Lutheran Deaconess Home and Hospital	Chicago

NONFEDERAL—Continued

Mercy Hospital	Chicago
Michael Reese Hospital	Chicago
Mother Cabrini Memorial Hospital	Chicago
Mount Sinai Hospital	Chicago
Norwegian American Hospital	Chicago
Passavant Memorial Hospital	Chicago
Presbyterian Hospital	Chicago
Provident Hospital	Chicago
Ravenswood Hospital	Chicago
Roseland Community Hospital	Chicago
St. Anne's Hospital	Chicago
St. Bernard's Hospital	Chicago
St. Elizabeth Hospital	Chicago
St. Joseph Hospital	Chicago
St. Luke's Hospital	Chicago
St. Mary of Nazareth Hospital	Chicago
South Chicago Community Hospital	Chicago
South Shore Hospital	Chicago
Swedish Covenant Hospital	Chicago
University of Chicago Clinics	Chicago
University of Illinois Research and Educational Hospitals	Chicago
Walther Memorial Hospital	Chicago
Women and Children's Hospital	Chicago
Woodlawn Hospital	Chicago
Decatur and Macon County Hospital	Decatur Ill.
St. Mary's Hospital	East St Louis Ill.
Memorial Hospital	Elmhurst Ill.
Evanston Hospital	Evanston Ill.
St. Francis Hospital	Evanston Ill.
Little Company of Mary Hospital	Evergreen Park Ill.
St Joseph's Hospital	Joliet Ill.
Moline Public Hospital	Moline Ill
Oak Park Hospital	Oak Park Ill.
West Suburban Hospital	Oak Park Ill.
Methodist Hospital of Central Illinois	Peoria Ill
St Francis Hospital	Peoria Ill.
Rockford Memorial Hospital	Rockford Ill.
St Anthony's Hospital	Rockford Ill.
Swedish American Hospital	Rockford Ill.
Memorial Hospital	Springfield Ill.
St. Catherine Hospital	East Chicago Ind.
Protestant Deaconess Hospital	Evansville Ind.
Lutheran Hospital	Fort Wayne Ind.
St Joseph Hospital.	Fort Wayne Ind
Methodist Hospital	Gary Ind
St. Mary's Mercy Hospital	Gary Ind
St. Margaret Hospital	Hammond Ind
Indianapolis General Hospital	Indianapolis
Indiana University Medical Center	Indianapolis
Methodist Hospital	Indianapolis
St. Vincent's Hospital	Indianapolis
St. Elizabeth Hospital.	Lafayette Ind
St Joseph Hospital	Mishawaka Ind
Ball Memorial Hospital	Muncie Ind
Memorial Hospital	South Bend Ind
St Joseph's Hospital	South Bend Ind
Mercy Hospital	Cedar Rapids Iowa
St. Luke's Methodist Hospital	Cedar Rapids Iowa
Mercy Hospital	Council Bluffs Iowa
Mercy Hospital	Davenport Iowa
Broadlawns Polk County Hospital	Des Moines Iowa
Iowa Lutheran Hospital	Des Moines Iowa
Iowa Methodist Hospital	Des Moines Iowa
Mercy Hospital	Des Moines Iowa
Mercy Hospital	Iowa City
University Hospitals	Iowa City
St. Joseph Mercy Hospital	Sioux City Iowa
Bethany Hospital	Kansas City Kan
Providence Hospital	Kansas City Kan
St Margaret Hospital	Kansas City Kan
University of Kansas Medical Center	Kansas City Kan
St. Francis Hospital	Wichita Kan
Wesley Hospital	Wichita Kan
Wichita St. Joseph Hospital	Wichita Kan
St. Elizabeth Hospital	Covington Ky
Good Samaritan Hospital	Lexington Ky
St. Joseph Hospital	Lexington Ky
Kentucky Baptist Hospital	Louisville Ky
Louisville General Hospital	Louisville Ky
Norton Memorial Infirmary	Louisville Ky
St. Anthony Hospital	Louisville Ky
St. Joseph Infirmary	Louisville Ky
SS Mary and Elizabeth Hospital	Louisville, Ky
Baton Rouge General Hospital	Baton Rouge La
Charity Hospital of Louisiana	New Orleans
Hotel Dieu Sisters Hospital	New Orleans
Mercy Hospital-Soniat Memorial	New Orleans
Southern Baptist Hospital.	New Orleans
Touro Infirmary	New Orleans
Confederate Memorial Medical Center	Shreveport La
North Louisiana Sanitarium	Shreveport La
Eastern Maine General Hospital	Bangor Maine
Central Maine General Hospital	Lewiston Maine
St. Mary's General Hospital	Lewiston Maine
Maine General Hospital	Portland Maine
Baltimore City Hospitals	Baltimore
Bon Secours Hospital	Baltimore
Church Home and Hospital	Baltimore
Franklin Square Hospital.	Baltimore
Lutheran Hospital	Baltimore
Maryland General Hospital.	Baltimore
Mercy Hospital	Baltimore
St. Agnes Hospital	Baltimore
St. Joseph's Hospital	Baltimore
Sinai Hospital	Baltimore
South Baltimore General Hospital	Baltimore
Union Memorial Hospital	Baltimore
University Hospital	Baltimore
Suburban Hospital	Bethesda Md.
Prince George's General Hospital	Cheverly Md.

Beverly Hospital	Beverly Mass.
Carney Hospital	Boston
New England Hospital	Boston
St Elizabeth's Hospital	Boston
Brockton Hospital	Brockton Mass
Cambridge City Hospital	Cambridge Mass
Mount Auburn Hospital	Cambridge Mass
Truesdale Hospital	Fall River Mass.
Union Hospital	Fall River Mass
Holyoke Hospital	Holyoke, Mass.
Lawrence General Hospital	Lawrence Mass.
Lowell General Hospital	Lowell, Mass
St John's Hospital	Lowell Mass
St Joseph's Hospital	Lowell Mass
Lynn Hospital	Lynn Mass
St. Luke's Hospital	New Bedford Mass
Newton Wellesley Hospital	Newton Lower Falls Mass
St Luke's Hospital	Pittsfield Mass.
Quincy City Hospital	Quincy Mass
Salem Hospital	Salem Mass
Mercy Hospital	Springfield Mass
Springfield Hospital	Springfield Mass
Wesson Memorial Hospital	Springfield Mass
Waltham Hospital	Waltham Mass
Memorial Hospital	Worcester Mass
St Vincent Hospital	Worcester Mass
Worcester City Hospital.	Worcester Mass
St Joseph's Mercy Hospital	Ann Arbor Mich.
Leila Y Post Montgomery Hospital	Battle Creek Mich.
City of Detroit Receiving Hospital	Detroit
Detroit Memorial Hospital	Detroit
Evangelical Deaconess Hospital	Detroit
Grace Hospital	Detroit
Harper Hospital	Detroit
Henry Ford Hospital.	Detroit
Mount Carmel Mercy Hospital	Detroit
Providence Hospital	Detroit
St. John Hospital	Detroit
St. Joseph Mercy Hospital	Detroit
Sinai Hospital	Detroit
Woman's Hospital	Detroit
Wayne County General Hospital and Infirmary	Eloise Mich.
Hurley Hospital	Flint Mich.
McLaren General Hospital	Flint Mich.
St. Joseph Hospital	Flint Mich.
Blodgett Memorial Hospital	Grand Rapids Mich.
Butterworth Hospital	Grand Rapids Mich.
St. Mary's Hospital	Grand Rapids Mich.
Bon Secours Hospital	Grosse Pointe Mich.
Highland Park General Hospital.	Highland Park Mich.
Borgess Hospital	Kalamazoo Mich.
Bronson Methodist Hospital	Kalamazoo Mich.
Edward W Sparrow Hospital	Lansing Mich.
St. Lawrence Hospital	Lansing Mich.
Pontiac General Hospital	Pontiac, Mich.
St Joseph Mercy Hospital	Pontiac, Mich.
Saginaw General Hospital.	Saginaw Mich.
St. Luke's Hospital.	Saginaw Mich.
St Mary's Hospital	Saginaw Mich.
James Decker Munson Hospital	Traverse City Mich.
St Luke's Hospital	Duluth Minn.
St Mary's Hospital	Duluth Minn.
Abbott Hospital	Minneapolis
Asbury Methodist Hospital	Minneapolis
Minneapolis General Hospital	Minneapolis
Mount Sinai Hospital	Minneapolis
Northwestern Hospital	Minneapolis
St Barnabas Hospital	Minneapolis
St Mary's Hospital	Minneapolis
Swedish Hospital	Minneapolis
University of Minnesota Hospitals	Minneapolis
Ancker Hospital	St Paul
Charles T Miller Hospital	St. Paul
St Joseph's Hospital	St. Paul
St. Luke's Hospital.	St. Paul
Mississippi Baptist Hospital	Jackson Miss.
Mercy Hospital Street Memorial.	Vicksburg Miss.
St. Louis County Hospital	Clayton Mo
Kansas City General Hospital No 1	Kansas City Mo
Kansas City General Hospital No 2.	Kansas City Mo
Menorah Hospital Medical Center	Kansas City Mo
Research Hospital	Kansas City Mo
St. Joseph Hospital	Kansas City Mo
St. Luke's Hospital	Kansas City Mo
St. Mary's Hospital	Kansas City Mo
Trinity Lutheran Hospital	Kansas City Mo
Missouri Methodist Hospital	St Joseph Mo
St Joseph's Hospital	St. Joseph Mo
Christian Hospital	St. Louis
De Paul Hospital	St. Louis
Evangelical Deaconess Hospital	St. Louis
Homer G Phillips Hospital	St. Louis
Jewish Hospital	St Louis
Missouri Baptist Hospital.	St. Louis
St. Anthony's Hospital	St Louis
St. John's Hosptial	St. Louis
St. Luke's Hospital.	St. Louis
St Mary's Group of Hospitals	St. Louis
St. James Hospital	Butte Mont.
Montana Deaconess Hospital	Great Falls Mont.
Bryan Memorial Hospital.	Lincoln Neb
Lincoln General Hospital	Lincoln Neb
St. Elizabeth Hospital	Lincoln Neb
Bishop Clarkson Memorial Hospital.	Omaha
Creighton Memorial-St. Joseph's Hospital	Omaha
Immanuel Hospital	Omaha
Nebraska Methodist Hospital.	Omaha
St. Catherine's Hospital.	Omaha
University of Nebraska Hospital	Omaha

NONFEDERAL—Continued

Mary Hitchcock Memorial Hospital	Hanover, N H
Atlantic City Hospital	Atlantic City, N J
Bayonne Hospital and Dispensary	Bayonne, N J
Cooper Hospital	Camden N J
West Jersey Hospital	Camden, N J
East Orange General Hospital	East Orange, N J
Elizabeth General Hospital and Dispensary	Elizabeth, N J
St Elizabeth Hospital	Elizabeth, N J
Englewood Hospital	Englewood, N J
Hackensack Hospital	Hackensack, N J
St Mary's Hospital	Hoboken, N J
Christ Hospital	Jersey City, N J
Jersey City Hospital	Jersey City, N J
St Francis Hospital	Jersey City N J
Monmouth Memorial Hospital	Long Branch, N J
Mountainside Hospital	Montclair, N J
All Souls Hospital	Morristown, N J
Morristown Memorial Hospital	Morristown N J
Fitkin Memorial Hospital	Neptune, N J
Harrison S Martland Medical Center	Newark N J
Hospital of Saint Barnabas and for Women and Children	Newark, N J
Newark Beth Israel Hospital	Newark, N J
Presbyterian Hospital	Newark N J
St Michael's Hospital	Newark N J
St Peter's General Hospital	New Brunswick, N J
Orange Memorial Hospital	Orange N J
Bergen Pines County Hospital	Paramus N J
Passaic General Hospital	Passaic, N J
St Mary's Hospital	Passaic N J
Barnert Memorial Hospital	Paterson N J
Paterson General Hospital	Paterson, N J
St Joseph Hospital	Paterson N J
Perth Amboy General Hospital	Perth Amboy N J
Muhlenberg Hospital	Plainfield N J
Overlook Hospital	Summit N J
Holy Name Hospital	Teaneck N J
Mercer Hospital	Trenton, N J
St Francis Hospital	Trenton N J
William McKinley Memorial Hospital	Trenton N J
North Hudson Hospital	Weehawken N J
Albany Hospital	Albany N Y
Memorial Hospital	Albany, N Y
St Peter's Hospital	Albany, N Y
Binghamton City Hospital	Binghamton N Y
Lawrence Hospital	Bronxville, N Y
Beth El Hospital	Brooklyn
Brooklyn Hospital	Brooklyn
Coney Island Hospital	Brooklyn
Cumberland Hospital	Brooklyn
Greenpoint Hospital	Brooklyn
Jewish Hospital	Brooklyn
Kings County Hospital Center	Brooklyn
Long Island College Hospital	Brooklyn
Maimonides Hospital	Brooklyn
Methodist Hospital	Brooklyn
Norwegian Lutheran Deaconesses' Home and Hospital	Brooklyn
Prospect Heights Hospital	Brooklyn
St Catherine's Hospital	Brooklyn
St John's Episcopal Hospital	Brooklyn
St Mary's Hospital	Brooklyn
Unity Hospital	Brooklyn
Wyckoff Heights Hospital	Brooklyn
Buffalo General Hospital	Buffalo
Deaconess Hospital	Buffalo
Edward J Meyer Memorial Hospital	Buffalo
Mercy Hospital	Buffalo
Millard Fillmore Hospital	Buffalo
Sisters of Charity Hospital	Buffalo
Mary Imogene Bassett Hospital	Cooperstown, N Y
Arnot Ogden Memorial Hospital	Elmira, N Y
St Joseph's Hospital	Elmira, N Y
Flushing Hospital and Dispensary	Flushing, N Y
North Country Community Hospital	Glen Cove, N Y
Glens Falls Hospital	Glens Falls, N Y
Meadowbrook Hospital	Hempstead, N Y
Jamaica Hospital	Jamaica, N Y
Mary Immaculate Hospital	Jamaica, N Y
Queens General Hospital	Jamaica, N Y
Charles S Wilson Memorial Hospital	Johnson City, N Y
Our Lady of Victory Hospital	Lackawanna, N Y
St John's Long Island City Hospital	Long Island City, N Y
Nassau Hospital	Mineola, N Y
Northern Westchester Hospital	Mount Kisco N Y
Mount Vernon Hospital	Mount Vernon, N Y
St Luke's Hospital	Newburgh, N Y
New Rochelle Hospital	New Rochelle N Y
Beth David Hospital	New York City
Beth Israel Hospital	New York City
Bronx Hospital	New York City
Columbus Hospital	New York City
Fordham Hospital	New York City
French Hospital	New York City
Harlem Hospital	New York City
Hospital for Joint Diseases	New York City
Jewish Memorial Hospital	New York City

NONFEDERAL—Continued

Knickerbocker Hospital	New York City
Lebanon Hospital	New York City
Lenox Hill Hospital	New York City
Lincoln Hospital	New York City
Metropolitan Hospital	New York City
Misericordia Hospital	New York City
Morrisania City Hospital	New York City
Mother Cabrini Memorial Hospital	New York City
Mount Sinai Hospital	New York City
New York City Hospital	New York City
New York Infirmary	New York City
New York Polyclinic Medical School and Hospital	New York City
St Clare's Hospital	New York City
St Francis Hospital	New York City
St Vincent's Hospital	New York City
Sydenham Hospital	New York City
Mount St Mary's Hospital	Niagara Falls, N Y
United Hospital	Port Chester, N Y
St Francis Hospital	Poughkeepsie, N Y
Vassar Brothers Hospital	Poughkeepsie, N Y
Genesee Hospital	Rochester, N Y
Highland Hospital	Rochester, N Y
Rochester General Hospital	Rochester, N Y
St Mary's Hospital	Rochester, N Y
Strong Memorial Rochester Municipal Hospitals	Rochester, N Y
Ellis Hospital	Schenectady, N Y
St Clare's Hospital	Schenectady, N Y
St Vincent's Hospital	Staten Island, N Y
Staten Island Hospital	Staten Island, N Y
St Joseph's Hospital	Syracuse, N Y
State University of New York Medical Center	Syracuse N Y
St Mary's Hospital	Troy N Y
Samaritan Hospital	Troy, N Y
Grasslands Hospital	Valhalla, N Y
St Agnes Hospital	White Plains, N Y
White Plains Hospital	White Plains, N Y
St John's Riverside Hospital	Yonkers N Y
St Joseph's Hospital	Yonkers, N Y
Yonkers General Hospital	Yonkers, N Y
Charlotte Memorial Hospital	Charlotte N C
Lincoln Hospital	Durham, N C
Watts Hospital	Durham, N C
Rex Hospital	Raleigh N C
St. Agnes Hospital	Raleigh N C
James Walker Memorial Hospital	Wilmington N C
City Memorial Hospital	Winston Salem, N C
Kate Bitting Reynolds Memorial Hospital	Winston-Salem N C
St John's Hospital	Fargo N D
St Luke's Hospital	Fargo, N D
Grand Forks Deaconess Hospital	Grand Forks N D
Trinity Hospital	Minot N D
City Hospital	Akron Ohio
Peoples Hospital	Akron, Ohio
St Thomas Hospital	Akron, Ohio
Aultman Hospital	Canton Ohio
Mercy Hospital	Canton, Ohio
Bethesda Hospital	Cincinnati
Christ Hospital	Cincinnati
Cincinnati General Hospital	Cincinnati
Deaconess Hospital	Cincinnati
Good Samaritan Hospital	Cincinnati
Jewish Hospital	Cincinnati
St Mary's Hospital	Cincinnati
City Hospital	Cleveland
Evangelical Deaconess Hospital	Cleveland
Fairview Park Hospital	Cleveland
Lutheran Hospital	Cleveland
Mount Sinai Hospital	Cleveland
St Alexis Hospital	Cleveland
St John's Hospital	Cleveland
St Luke's Hospital	Cleveland
St Vincent Charity Hospital	Cleveland
University Hospitals	Cleveland
Doctors Hospital	Cleveland Heights
Grant Hospital	Columbus, Ohio
Mount Carmel Hospital	Columbus Ohio
Ohio State University Hospital	Columbus, Ohio
University Hospital	Columbus, Ohio
White Cross Hospital	Columbus Ohio
Good Samaritan Hospital	Dayton Ohio
Miami Valley Hospital	Dayton Ohio
St Elizabeth Hospital	Dayton Ohio
Huron Road Hospital	East Cleveland
Elyria Memorial Hospital	Elyria Ohio
Euclid Glenville Hospital	Euclid Ohio
Marymount Hospital	Garfield Heights Ohio
Mercy Hospital	Hamilton Ohio
Lakewood Hospital	Lakewood Ohio
Lima Memorial Hospital	Lima Ohio
St Rita's Hospital	Lima Ohio
Mercy Hospital	Springfield Ohio
Springfield City Hospital	Springfield Ohio
Ohio Valley Hospital	Steubenville Ohio
Flower Hospital	Toledo Ohio
Maumee Valley Hospital	Toledo Ohio

NONFEDERAL—Continued

Mercy Hospital	Toledo Ohio
Riverside Hospital	Toledo Ohio
St Vincent's Hospital	Toledo Ohio
Toledo Hospital	Toledo Ohio
St Elizabeth Hospital	Youngstown Ohio
Youngstown Hospital	Youngstown Ohio
Mercy Hospital	Oklahoma City
St Anthony Hospital	Oklahoma City
University Hospitals	Oklahoma City
Wesley Hospital	Oklahoma City
Hillcrest Medical Center	Tulsa Okla.
St John's Hospital	Tulsa Okla
Sacred Heart General Hospital	Eugene Ore.
Emanuel Hospital	Portland Ore
Good Samaritan Hospital	Portland Ore.
Portland Sanitarium and Hospital	Portland Ore
Providence Hospital	Portland Ore.
St Vincent's Hospital	Portland Ore
Univ of Oregon Medical School Hospitals and Clinics	Portland, Ore.
Abington Memorial Hospital	Abington Pa
Allentown Hospital	Allentown Pa
Sacred Heart Hospital	Allentown Pa
Altoona Hospital	Altoona Pa
Mercy Hospital	Altoona Pa.
St Luke's Hospital	Bethlehem Pa
Bryn Mawr Hospital	Bryn Mawr Pa
Chester Hospital	Chester Pa
Geo F Geisinger Memorial Hospital	Danville Pa
Thomas M Fitzgerald Mercy Hospital	Darby Pa
Hamot Hospital	Erie Pa
St Vincent's Hospital	Erie Pa
Westmoreland Hospital	Greensburg Pa
Harrisburg Hospital	Harrisburg Pa
Harrisburg Polyclinic Hospital	Harrisburg Pa
Conemaugh Valley Memorial Hospital	Johnstown Pa
Lancaster General Hospital	Lancaster Pa
St Joseph's Hospital	Lancaster Pa
McKeesport Hospital	McKeesport Pa.
Montgomery Hospital	Norristown Pa
Sacred Heart Hospital	Norristown Pa
Albert Einstein Medical Center Northern Division	Philadelphia
Albert Einstein Medical Center Southern Division	Philadelphia
Chestnut Hill Hospital	Philadelphia
Episcopal Hospital	Philadelphia
Frankford Hospital	Philadelphia
Germantown Dispensary and Hospital	Philadelphia
Graduate Hospital of the University of Pennsylvania	Philadelphia
Hahnemann Hospital	Philadelphia
Hospital of the University of Pennsylvania	Philadelphia
Hospital of the Woman's Med College of Pennsylvania	Philadelphia
Jefferson Medical College Hospital	Philadelphia
Lankenau Hospital	Philadelphia
Memorial Hospital	Philadelphia
Methodist Episcopal Hospital	Philadelphia
Misericordia Hospital	Philadelphia
Nazareth Hospital	Philadelphia
Pennsylvania Hospital	Philadelphia
Philadelphia General Hospital	Philadelphia
Presbyterian Hospital	Philadelphia
St Agnes Hospital	Philadelphia
St. Joseph's Hospital	Philadelphia
St. Luke's and Children's Medical Center	Philadelphia
St. Mary's Hospital	Philadelphia
Temple University Hospital	Philadelphia
Woman's Hospital	Philadelphia
Allegheny General Hospital	Pittsburgh
Mercy Hospital	Pittsburgh
Montefiore Hospital	Pittsburgh
Pittsburgh Hospital	Pittsburgh
Presbyterian Hospital	Pittsburgh
St Francis Hospital	Pittsburgh
St John's General Hospital	Pittsburgh
St Joseph's Hospital and Dispensary	Pittsburgh
St Margaret Memorial Hospital	Pittsburgh
Shadyside Hospital	Pittsburgh
South Side Hospital	Pittsburgh
Western Pennsylvania Hospital	Pittsburgh
Community General Hospital	Reading Pa
Reading Hospital	Reading Pa
St Joseph's Hospital	Reading Pa
Robert Packer Hospital	Sayre Pa
Scranton State Hospital	Scranton Pa
Sewickley Valley Hospital	Sewickley Pa
Uniontown Hospital	Uniontown Pa
Washington Hospital	Washington Pa
Chester County Hospital	West Chester Pa
Mercy Hospital	Wilkes Barre Pa
Wilkes Barre General Hospital	Wilkes Barre Pa
Columbia Hospital	Wilkinsburg Pa
Divine Providence Hospital	Williamsport Pa
Williamsport Hospital	Williamsport Pa
York Hospital	York Pa
Newport Hospital	Newport R I
Memorial Hospital	Pawtucket R I
Rhode Island Hospital	Providence R I

NONFEDERAL—Continued

Roger Williams General Hospital	Providence R I
St Joseph's Hospital	Providence R. I.
Roper Hospital	Charleston S C
Columbia Hospital	Columbia S C
McLeod Infirmary	Florence S C
Greenville General Hospital	Greenville S C
Orangeburg Regional Hospital	Orangeburg S C
Spartanburg General Hospital	Spartanburg S C
McKennan Hospital	Sioux Falls S Dak.
Sioux Valley Hospital	Sioux Falls S Dak.
Sacred Heart Hospital	Yankton S Dak
Baroness Erlanger Hospital	Chattanooga Tenn.
Holston Valley Community Hospital	Kingsport Tenn
Fort Sanders Hospital	Knoxville Tenn.
Knoxville General Hospital	Knoxville Tenn
St Mary's Memorial Hospital	Knoxville Tenn
Baptist Memorial Hospital	Memphis Tenn
John Gaston Hospital	Memphis Tenn
Methodist Hospital	Memphis Tenn.
St Joseph Hospital	Memphis Tenn
Geo W Hubbard Hospital	Nashville Tenn
Mid State Baptist Hospital	Nashville Tenn
Nashville General Hospital	Nashville Tenn
St Thomas Hospital	Nashville Tenn
Brackenridge Hospital	Austin Texas
Memorial Hospital	Corpus Christi Texas
Baylor University Hospital	Dallas Texas
Methodist Hospital	Dallas Texas
Parkland Hospital	Dallas Texas
St Paul's Hospital	Dallas Texas
El Paso General Hospital	El Paso Texas
City County Hospital	Fort Worth Texas
Harris Hospital	Fort Worth Texas
St Joseph's Hospital	Fort Worth Texas
University of Texas Medical Branch Hospitals	Galveston Texas
Hermann Hospital	Houston Texas
Jefferson Davis Hospital	Houston Texas
Methodist Hospital	Houston Texas
St Joseph's Hospital	Houston Texas
Baptist Memorial Hospital	San Antonio Texas
Robert B Green Memorial Hospital	San Antonio Texas
Santa Rosa Hospital	San Antonio Texas
King's Daughters Hospital	Temple Texas
Scott and White Memorial Hospitals	Temple Texas
Providence Hospital	Waco Texas
St Benedict's Hospital	Ogden Utah
Thomas D Dee Memorial Hospital	Ogden Utah
Dr W H Groves Latter Day Saints Hospital	Salt Lake City
Holy Cross Hospital.	Salt Lake City
St Mark's Hospital	Salt Lake City
Salt Lake County General Hospital	Salt Lake City
Bishop De Goesbriand Hospital	Burlington Vt
Mary Fletcher Hospital	Burlington Vt
Alexandria Hospital	Alexandria Va
University of Virginia Hospital	Charlottesville Va
Memorial Hospital	Danville Va
Mary Immaculate Hospital	Newport News Va
Riverside Hospital	Newport News Va
De Paul Hospital	Norfolk Va
Norfolk General Hospital	Norfolk Va
Johnston Willis Hospital	Richmond Va
Medical College of Virginia—Hospital Division Memorial Dooley and St. Philip Hospitals	Richmond Va
Stuart Circle Hospital	Richmond Va
Lewis-Gale Hospital	Roanoke Va
Memorial and Crippled Children's Hospital	Roanoke Va
Louise Obici Memorial Hospital	Suffolk Va
Winchester Memorial Hospital	Winchester Va
Doctor's Hospital	Seattle
King County Hospital Unit No 1 (Harborview)	Seattle
Providence Hospital	Seattle
Seattle General Hospital	Seattle
Swedish Hospital	Seattle
Virginia Mason Hospital	Seattle
Deaconess Hospital	Spokane Wash
Sacred Heart Hospital	Spokane Wash
St Luke's Hospital	Spokane Wash
Pierce County Hospital	Tacoma Wash
St Joseph Hospital	Tacoma Wash
Tacoma General Hospital	Tacoma Wash
Charleston General Hospital	Charleston W Va
Kanawha Valley Hospital	Charleston W Va
Memorial Hospital	Charleston W Va
St Mary's Hospital	Huntington W Va
Camden Clark Memorial Hospital	Parkersburg W Va
Ohio Valley General Hospital	Wheeling W Va
Wheeling Hospital	Wheeling W Va
Luther Hospital	Eau Claire Wis
Mercy Hospital	Janesville, Wis
La Crosse Lutheran Hospital	La Crosse Wis
St Francis Hospital	La Crosse Wis
Madison General Hospital	Madison Wis
Methodist Hospital	Madison Wis
St Mary's Hospital	Madison Wis
University Hospital	Madison, Wis.

NONFEDERAL—Continued

St Joseph's Hospital	Marshfield, Wis
Columbia Hospital	Milwaukee
Evangelical Deaconess Hospital	Milwaukee
Milwaukee County Hospital	Milwaukee
Milwaukee Hospital	Milwaukee
Misericordia Hospital	Milwaukee
Mount Sinai Hospital	Milwaukee
St Joseph's Hospital	Milwaukee
St Luke's Hospital	Milwaukee
St Mary's Hospital	Milwaukee
St Michael's Hospital	Milwaukee
Mercy Hospital	Oshkosh, Wis
St Mary's Hospital	Wausau, Wis
Gorgas Hospital	Ancon, C Z
Queens Hospital	Honolulu, T H
St Francis Hospital	Honolulu, T H
Arecibo District Hospital	Arecibo P R
Bayamon Charity District Hospital	Bayamon, P R
Fajardo District Hospital	Fajardo, P R
Presbyterian Hospital	San Juan, P R
San Juan City Hospital	San Juan, P R

ROTATING (MED MAJOR)

Number of Approved Programs, 11

George Washington University Hospital	Washington, D C
Ravenswood Hospital	Chicago
Memorial Hospital	Elmhurst, Ill
Holyoke Hospital	Holyoke, Mass
University Hospital	Ann Arbor, Mich
Missouri Baptist Hospital	St Louis
St Louis City Hospital	St Louis
Lynchburg General Hospital	Lynchburg, Va
Riverside Hospital	Newport News, Va
Norfolk General Hospital	Norfolk, Va
Memorial Hospital	Charleston, W Va

ROTATING (SURG MAJOR)

Number of Approved Programs, 13

George Washington University Hospital	Washington, D C
Ravenswood Hospital	Chicago
Memorial Hospital	Elmhurst, Ill
T F Schumpert Memorial Hospital	Shreveport La
Holyoke Hospital	Holyoke, Mass
University Hospital	Ann Arbor Mich
Missouri Baptist Hospital	St Louis
Bellevue Hospital Center Div I—Surgical—Columbia University	New York City
St Mary's Hospital	Troy, N Y
Lynchburg General Hospital	Lynchburg Va
Riverside Hospital	Newport News, Va
Norfolk General Hospital	Norfolk, Va
Memorial Hospital	Charleston, W Va

ROTATING (PED MAJOR)

Number of Approved Programs, 5

Memorial Hospital	Elmhurst Ill
University Hospital	Ann Arbor, Mich
Riverside Hospital	Newport News, Va
Norfolk General Hospital	Norfolk, Va
Memorial Hospital	Charleston, W Va

ROTATING (OB-GYN MAJOR)

Number of Approved Programs, 6

Memorial Hospital	Elmhurst, Ill
University Hospital	Ann Arbor, Mich
Woman's Hospital	Philadelphia
Riverside Hospital	Newport News, Va
Norfolk General Hospital	Norfolk, Va
Memorial Hospital	Charleston, W Va

OTHER ROTATING

Number of Approved Programs, 10

University of Colorado Medical Center Denver General Hospital Community Rotating	Denver
George Washington University Hospital Rotating (Path Major)	Washington, D C
University Hospital Rotating (Neurol Major) Rotating (Derm Major) Rotating (Anes Major) Rotating (Otology Major) Rotating (Ophthal Major) Rotating (Phys Med Rehab Major) Rotating (Gen Prac Major) Rotating (Path Major)	Ann Arbor, Mich

MIXED

Number of Approved Programs, 29

United States Public Health Service
University of California Hospital, San Francisco, Med Ob Gyn, Med Surg
Bridgeport Hospital, Bridgeport Conn, Med Surg
University of Kansas Medical Center, Kansas City, Kan, Med Surg Ped
William Booth Memorial Hospital, Covington, Ky, Med Surg Ob Gyn.
Hospital For Women, Baltimore, Med Ob Gyn
Faulkner Hospital, Boston Med-Surg Ob Gyn
Lutheran Deaconess Home and Hospital, Minneapolis, Med-Surg Ob Gyn
Lutheran Hospital, St Louis Med-Surg Ob Gyn
Alexian Brothers Hospital, Elizabeth, N J, Med-Surg
Long Island College Hospital, Brooklyn, N Y, Med-Surg Ob Gyn
Mary Imogene Basset Hospital, Cooperstown, N Y, Med Surg Ob Gyn.
Bellevue Hospital Center, New York City
  Division I—Medical—Columbia University, Med Chest Surg or Path
Bellevue Hospital Center, New York City
  Division II—Medical—Cornell University Med Path
Bellevue Hospital Center, New York City
  Division III—Medical—New York University College of Medicine, Med Surg
Lenox Hill Hospital, New York City, Med Surg Ob Gyn
Misericordia Hospital New York City, Med Ped
Montefiore Hospital, New York City, Med-Surg Pul Neur Neoplastic
Roosevelt Hospital, New York City Med Ped-Surg, Surg Gyn Med
St Luke's Hospital, New York City, Med Surg Surg Med
Strong Memorial Rochester Municipal Hospital, Rochester, N Y, Surg Ob Gyn
General Hospital, Syracuse, N Y, Med Surg Ob Gyn
North Carolina Memorial Hospital, Chapel Hill, N C, Med Ped
Duke Hospital, Durham, N C Ob Ped
North Carolina Baptist Hospital, Winston-Salem, N C, Ped Ob Gyn
Bethesda Hospital, Cincinnati, Med Ob Surg
University Hospitals Oklahoma City, Med Surg, Ob Ped
Baroness Erlanger Hospital, Chattanooga, Tenn, Med Ob Ped.
Jefferson Hospital, Roanoke, Va, Surg Med Ob

STRAIGHT

Total Number of Approved Programs, 209

INTERNAL MEDICINE

Number of Approved Programs, 71

Veterans Admin Hospital	Little Rock, Ark
Veterans Admin Hospital	Long Beach, Calif
Veterans Admin Hospital	Atlanta, Ga
Veterans Admin Hospital	Oklahoma City
Veterans Admin Hospital	Dallas, Texas
Veterans Admin Hospital	McKinney, Texas
Veterans Admin Hospital	Salt Lake City
Veterans Admin Hospital	Richmond, Va.
University Hospital	Little Rock, Ark
Stanford University Hospitals	San Francisco
University of California Hospital	San Francisco
Grace New Haven Community Hospital	New Haven, Conn
Grady Memorial Hospital	Atlanta, Ga
Emory University Hospital	Emory University, Ga
Michael Reese Hospital	Chicago
University of Illinois Research and Educational Hospitals	Chicago
Louisville General Hospital	Louisville, Ky
Baltimore City Hospital	Baltimore
Church Home and Hospital	Baltimore
Johns Hopkins Hospital	Baltimore
Sinai Hospital	Baltimore
Beth Israel Hospital	Boston
Boston City Hospital	Boston
Massachusetts General Hospital	Boston
Massachusetts Memorial Hospitals	Boston
New England Center Hospital	Boston
Peter Bent Brigham Hospital	Boston
Northwestern Hospital	Minneapolis
University of Minnesota Hospitals	Minneapolis
Barnes Hospital	St Louis
St Louis City Hospital	St Louis
St Mary's Group of Hospitals	St Louis
Jersey City Hospital	Jersey City, N J
Albany Hospital	Albany N Y
Cumberland Hospital	Brooklyn
Kings County Hospital	Brooklyn
Long Island College Hospital	Brooklyn
Maimonides Hospital	Brooklyn
Methodist Hospital	Brooklyn
St John's Episcopal Hospital	Brooklyn
Buffalo General Hospital	Buffalo
Mary Imogene Bassett Hospital	Cooperstown, N Y
Charles S Wilson Memorial Hospital	Johnson City, N Y
Bellevue Hospital Center Division II—Medical Cornell University	New York City
Bellevue Hospital Center Division III—Medical New York University College of Medicine	New York City

INTERNAL MEDICINE—Continued

Bellevue Hospital Center Division IV—Medical New York Postgraduate Medical School	New York City
Lebanon Hospital	New York City
New York Hospital	New York City
Presbyterian Hospital	New York City
St Clare s Hospital	New York City
St Vincent s Hospital	New York City
Genesee Hospital	Rochester N Y
Strong Memorial Rochester Municipal Hospitals	Rochester N Y
State University of N Y Medical Center	Syracuse N Y
North Carolina Memorial Hospital	Chapel Hill N C
Duke Hospital	Durham N C
Watts Hospital	Durham N C
North Carolina Baptist Hospital	Winston Salem N C
University Hospitals	Cleveland
Woman s Hospital	Philadelphia
Baptist Memorial Hospital	Memphis Tenn
St. Thomas Hospital.	Nashville Tenn
Vanderbilt University Hospital	Nashville Tenn
Baylor University Hospital	Dallas Texas
Parkland Hospital	Dallas Texas
St Paul s Hospital	Dallas Texas
Salt Lake County General Hospital	Salt Lake City
University of Virginia Hospital	Charlottesville Va
Chesapeake & Ohio Hospital	Clifton Forge Va
Medical College of Virginia—Hospital Division	Richmond Va
King County Hospital, Unit No 1 (Harborview)	Seattle

OBSTETRICS AND GYNECOLOGY

Number of Approved Programs 12

University Hospital	Little Rock Ark
Ravenswood Hospital	Chicago
Johns Hopkins Hospital	Baltimore
Barnes Hospital	St Louis
Holy Name Hospital	Teaneck N J
Cumberland Hospital	Brooklyn
Norwegian Lutheran Deaconess Home and Hospital	Brooklyn
Sisters of Charity Hospital	Buffalo
Charles S Wilson Memorial Hospital	Johnson City N Y
Bellevue Hospital Center Division III—Ob Gyn New York University College of Medicine	New York City
Watts Hospital (Ob only)	Durham N C
Vanderbilt University Hospital	Nashville Tenn

PATHOLOGY

Number of Approved Programs 26

University of California Hospital	San Francisco
Grace-New Haven Community Hospital	New Haven Conn
Emory University Hospital	Emory University Ga
Michael Reese Hospital	Chicago
Baltimore City Hospital	Baltimore
Johns Hopkins Hospital	Baltimore
Boston City Hospital	Boston
Children s Medical Center	Boston
Massachusetts Memorial Hospitals	Boston
Peter Bent Brigham Hospital	Boston
Holyoke Hospital	Holyoke Mass
Providence Hospital	Detroit
Barnes Hospital	St. Louis
Jersey City Hospital	Jersey City N J
Kings County Hospital	Brooklyn
Methodist Hospital	Brooklyn
Bellevue Hospital Center Division III—Pathology New York University College of Medicine	New York City
New York Hospital	New York City
Presbyterian Hospital	New York City
Genesee Hospital	Rochester N Y
Strong Memorial-Rochester Municipal Hospitals	Rochester N Y
Duke Hospital	Durham N C
North Carolina Baptist Hospital	Winston Salem N C
St John s Hospital	Tulsa Okla
Good Samaritan Hospital	Portland Ore
Vanderbilt University Hospital	Nashville Tenn.

PEDIATRICS

Number of Approved Programs, 40

University Hospital	Little Rock Ark.
Children s Hospital	Los Angeles
Stanford University Hospitals	San Francisco
University of California Hospital	San Francisco
Grace-New Haven Community Hospital	New Haven Conn
Grady Memorial Hospital	Atlanta Ga
Michael Reese Hospital	Chicago
University of Chicago Clinics	Chicago
University of Illinois Research and Educational Hospitals	Chicago
Louisville General Hospital	Louisville Ky
Baltimore City Hospital	Baltimore
Johns Hopkins Hospital	Baltimore
Sinai Hospital	Baltimore

PEDIATRICS—Continued

Boston City Hospital	Boston
Children s Medical Center	Boston
Massachusetts General Hospital	Boston
Northwestern Hospital	Minneapolis
University of Minnesota Hospitals	Minneapolis
St Louis Children s Hospital	St Louis
St Louis City Hospital	St Louis
St Mary s Group of Hospitals	St Louis
Jersey City Hospital	Jersey City N J
Cumberland Hospital	Brooklyn
Jewish Hospital	Brooklyn
Kings County Hospital	Brooklyn
Long Island College Hospital	Brooklyn
Methodist Hospital	Brooklyn
St John s Episcopal Hospital	Brooklyn
Bellevue Hospital Center—Division III—Pediatrics New York University College of Medicine	New York City
New York Hospital	New York City
Strong Memorial Rochester Municipal Hospitals	Rochester N Y
State University of N Y Medical Center	Syracuse N Y
North Carolina Memorial Hospital	Chapel Hill N C
Duke Hospital	Durham N C
North Carolina Baptist Hospitals	Winston Salem N C
University Hospitals	Cleveland
St Thomas Hospital	Nashville Tenn
Vanderbilt University Hospital	Nashville Tenn
Salt Lake County General Hospital	Salt Lake City
Milwaukee Children s Hospital	Milwaukee

SURGERY

Number of Approved Programs 63

Veterans Admin Hospital	Little Rock Ark.
Veterans Admin Hospital	McKinney Texas
University Hospital	Little Rock Ark
Stanford University Hospitals	San Francisco
University of California Hospital	San Francisco
Grace-New Haven Community Hospital	New Haven Conn
Grady Memorial Hospital	Atlanta Ga
Emory University Hospital	Emory University Ga
Michael Reese Hospital	Chicago
Mount Sinai Hospital	Chicago
Provident Hospital	Chicago
University of Illinois Research and Educational Hospitals	Chicago
Indiana University Medical Center	Indianapolis
Johns Hopkins Hospital	Baltimore
Sinai Hospital	Baltimore
Beth Israel Hospital	Boston
Boston City Hospital	Boston
Massachusetts General Hospital	Boston
Massachusetts Memorial Hospitals	Boston
New England Center Hospital	Boston
Peter Bent Brigham Hospital	Boston
Northwestern Hospital	Minneapolis
University of Minnesota Hospitals	Minneapolis
Barnes Hospital	St Louis
St Louis City Hospital	St Louis
St Mary s Group of Hospitals	St Louis
Jersey City Hospital	Jersey City N J
Albany Hospital	Albany N Y
Cumberland Hospital	Brooklyn
Kings County Hospital	Brooklyn
Long Island College Hospital	Brooklyn
Methodist Hospital	Brooklyn
St John s Episcopal Hospital	Brooklyn
Buffalo General Hospital	Buffalo
Queens General Hospital	Jamaica N Y
Charles S Wilson Memorial Hospital	Johnson City N Y
Mount Vernon Hospital	Mount Vernon N Y
Bellevue Hospital Center Division I—Surgical Columbia University	New York City
Bellevue Hospital Center Division III—Surgical New York University College of Medicine	New York City
Bellevue Hospital Center Division IV—Surgical New York University Postgraduate Medical School	New York City
Lebanon Hospital	New York City
Mount Sinai Hospital	New York City
New York Hospital	New York City
Presbyterian Hospital	New York City
St Clare s Hospital	New York City
St Vincent s Hospital	New York City
Genesee Hospital	Rochester N Y
State University of N Y Medical Center	Syracuse N Y
North Carolina Memorial Hospital	Chapel Hill N C
Duke Hospital	Durham N C
Watts Hospital	Durham N C
James Walker Memorial Hospital	Wilmington N C
North Carolina Baptist Hospital	Winston Salem N C
University Hospitals	Cleveland
Baptist Memorial Hospital	Memphis Tenn.
St Thomas Hospital.	Nashville Tenn
Vanderbilt University Hospital	Nashville Tenn
Baylor University Hospital.	Dallas Texas
St Paul s Hospital	Dallas Texas
Medical College of Virginia—Hospital Division	Richmond Va

APPROVED RESIDENCIES AND FELLOWSHIPS

Council on Medical Education and Hospitals of the American Medical Association

535 North Dearborn Street, Chicago 10

Revised to September 1, 1954

Hospitals, 1,186, Assistant Residencies, Residencies and Fellowships, 24,741

The following services are approved by the Council on Medical Education and Hospitals as meeting the requirements of the Essentials of Approved Residencies and Fellowships In those specialties in which certifying boards have been established approval is extended in concurrence with the Board concerned as indicated The number of years of training for which approval has been granted is indicated in the column, "Length of Approved Program (years)" Residencies in which this designation does not appear have been approved without specifying the number of years for which they are accredited The beginning stipends for Federal hospitals have not been listed, they are established in accordance with government pay tables

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1. ALLERGY

The following services have been approved for one year of training by the Council and the Subspecialty Board for Allergy of the American Board of Internal Medicine.

Hospitals, 18, Assistant Residencies and Residencies, 28

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
FEDERAL							
UNITED STATES ARMY							
Army Medical Center [1-3] [66-67]	Washington, D C	W H Diessner	376	25,225	1	1	
VETERANS ADMINISTRATION							
Veterans Admin Hospital [1-3]	Long Beach Calif	B F Klaumann	362	6 572		2	275
Veterans Admin Research Hospital	Chicago	(See Northwestern University Medical Center)					
Veterans Admin Hospital [1]	Aspinwall, Pa	L H Criep	150	19,125	2	2	220
NONFEDERAL							
Northwestern University Medical Center [1-3]	Chicago	S Feinberg	25	3 400	2	2	50
Veterans Admin Research Hospital	Chicago						
University of Illinois Research and Educational Hospitals [1]	Chicago	H F Dowling		4 890	1	1	110
Massachusetts General Hospital [1-3]	Boston	W S Burrage		7,316	1	3	
University Hospital [1-3]	Ann Arbor, Mich	J Sheldon		8 171	2	2	250
Mayo Foundation	Rochester, Minn						
Jewish Hospital [1-3]	Brooklyn	M Walzer	11	10 530	1	1	75
New York Hospital [1-3]	New York City	H Baldwin		9 670			
New York University Bellevue Medical Center							
University Hospital [1-3]	New York City	W Spain	12	6,445		1	250
Roosevelt Hospital [1-3]	New York City	R A Cooke	222	38 721	4	4	200
Duke Hospital [1-3-220]	Durham N C	O C E Hansen Pruss	160	1,576		2	200
Temple University Hospital [1-3]	Philadelphia	L Tuft		3,801	1	1	
Montefiore Hospital [1-3]	Pittsburgh	L H Criep	203	15,105	2	2	100
University of Virginia Hospital [1-3]	Charlottesville, Va	O Swineford, Jr		6 040	3	3	150
Medical College of Virginia—Hospital Division [1-3]	Richmond, Va	W B Blanton		5 871		1	100

2 ANESTHESIOLOGY

The following services have been approved by the Council and the American Board of Anesthesiology

Hospitals, 188, Assistant Residencies and Residencies, 1,006

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
FEDERAL								
UNITED STATES ARMY								
Letterman Army Hospital [1-3] [66]	San Francisco	H Makel	6,038	3 081	1	4	2	
Fitzsimons Army Hospital [1-66]	Denver	E P Shannon	6,064	2 955			2	
Army Medical Center [1-3-66-67]	Washington, D C	H Slocum	10,663	5 008	4	9	2	
Brooke Army Medical Center [3-66-280]	San Antonio, Texas	J G Inman	8,635	4,296			2	
UNITED STATES AIR FORCE								
U S Air Force Hospital [1-3]	San Antonio, Texas	A B Tarrow	6 053	1,855	2	2	2	
UNITED STATES NAVY								
U S Naval Hospital [1-3]	Oakland Calif	S Whitehouse	11,449	1,216	2	2	2	
U S Naval Hospital [1-3]	Bethesda, Md	D J Giorgio	9,495	3,340	1	2	2	
U S Naval Hospital [1]	Chelsea Mass	S A Wilber	6 851	2,379	2	2	2	
U S Naval Hospital [1-3]	Philadelphia	J G Lurfees	5,714	473		2	2	

2 ANESTHESIOLOGY—Continued

FEDERAL

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES PUBLIC HEALTH SERVICE								
U S Public Health Service Hospital[1,3]	Staten Island N Y	W A Cull	13,206	1 727	2	3	2	
VETERANS ADMINISTRATION								
Veterans Admin Hospital[1,3]	Los Angeles	N H Rupp	6 107	882	6	11	2	
Veterans Admin Hospital[1, 6]	Atlanta Ga	K Byers	1,522	70	1	2	2	
Veterans Admin Hospital[1, 93]	Hines Ill	M Sadove	5 440	1,827	7	12	2	
Veterans Admin Hospital[1, 105]	Des Moines Iowa	J L Bailey	2,914	505	3	7	2	
Veterans Admin Hospital[1, 3, 105]	Iowa City	D W Eastwood	1,535	266	4	8		
Veterans Admin Hospital	St Louis	H W Crouch	268	109		2	2	
Veterans Admin Hospital[1, 3, 110]	Brooklyn	H I Lipson	2,954	1 148	4	7	2	
Veterans Admin Hospital[1, 3, 413]	Buffalo	S I Guest	3,304	535		2	2	
Veterans Admin Hospital[3, 4, 1]	New York City (Bronx)	E A Rovenstine	5,523	1 480	5	10	2	
Veterans Admin Hospital[1,3]	Houston Texas	G E Bittenbender	2,106	1 167	2	4	2	
Veterans Admin Hospital[1,3]	McKinney Texas	F A D Alexander	1,332	344	2	4	2	
Veterans Admin Hospital[1, 67]	White River Jct Vt	R E Lapointe	1 477	459	1	2	2	
Veterans Admin Hospital[1,3]	Richmond Va	C G Lynch	3,562	762	2	3	2	
Veterans Admin Hospital[1]	Milwaukee	R A Tella—R Foregger	3,269	1 026	1	5	2	

NONFEDERAL

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
Jefferson Hillman Hospital[1, 3, 312]	Birmingham Ala	A McNeal	9,661	6 783	1	3	2	
Lloyd Noland Hospital[1,3]	Fairfield Ala	A Habeeb	3 104	1 750	1	2	2	225
St Vincent Infirmary	Little Rock Ark	J P Hickey	6 036	2,711	3	6	2	200
University Hospital[1,3]	Little Rock Ark	C W Shafer	1,969	1,327	3	5	2	120
Los Angeles County General Hospital[1, 9, 3-6]	Los Angeles	C F McCuskey	14,217	5 621	7	20	2	200
White Memorial Hospital[1, 3, 9]	Los Angeles	F E Leffingwell	4 917	2 423	3	6	2	
Highland—Alameda County Hospital	Oakland Calif	E E Brinckerhoff	3 762	1,290	1	2	2	195
Samuel Merritt Hospital[1]	Oakland Calif	B M Anderson	6 977	4,272	2	5	2	170
St Francis Memorial Hospital[1,3]	San Francisco	J E Cann	5 750	5,520	1	2	2	200
St Joseph's Hospital[1,3]	San Francisco	R A Simpson	4 141	1 680	1	2	2	150
Stanford University Hospitals[1,3]	San Francisco	P J Bailey	7,502	4,136	1	4	2	80
University of California Hospital[1,3]	San Francisco	F J Murphy	5,960	4,390		6	2	87
Santa Clara County Hospital[1]	San Jose Calif	J Atkinson Jr	1,058	1 440		1	2	260
University of Colorado Medical Center								
Colorado General Hospital[1,3]	Denver	R W Virtue	3,140	1 746	2	6	2	150
Denver General Hospital[1,3]	Denver	R W Virtue	2 181	1 464	2	3	2	
Bridgeport Hospital[1,3]	Bridgeport Conn	D M Massey	7 195	2 758	1	2	2	
Hartford Hospital[1-3, 55, 63]	Hartford Conn	R M Tovell	36,868	16 413	10	20	2	100
St Francis Hospital[1,3]	Hartford Conn	S J Martin	13,850	6,839	5	10	2	100
Grace New Haven Community Hospital[1,3]	New Haven Conn	L J Hampton	10,877	8,375	4	7	2	50
Hospital of St Raphael[3]	New Haven Conn	M Garofalo	10,340	6,941	2	5	2	15
Doctors Hospital[1,3]	Washington D C	D Stubbs—C W Hyde	8,581	6,311	1	2	2	150
Garfield Memorial Hospital[1,3]	Washington D C	W E Bageant	5 085	4 032	3	3	2	300
Georgetown University Hospital[1, 3, 3, 2]	Washington D C		7,330	4 742	5	10	2	
George Washington University Hospital[1,3]	Washington D C	C S Coakley	10,645	9,193		8	2	120
Riverside Hospital[1,3]	Jacksonville Fla	J T Stage	841	564	1	1	2	150
Jackson Memorial Hospital	Miami Fla	R S Sappenfield	12,847	5 130	2	4	2	75
University Hospital[1,3]	Augusta Ga	P P Volpitto	6,282	5 000	2	4	2	160
American Hospital[1,3]	Chicago	A Rappaport	2,594	1 687	5	6	2	50
Cook County Hospital[1,3]	Chicago	K Weiss	10,580	8,510	3	3	2	50
Grant Hospital[1,3]	Chicago	L A Gittelson	4 457	3 430	2	2	2	150
Michael Reese Hospital[1,3]	Chicago	B Stodsky	9 678	6 190	1	1	2	100
Mount Sinai Hospital[1-3]	Chicago	R Weyl	5 774	5 073		4	2	
Northwestern University Medical Center[110-311]								
Chicago Wesley Memorial Hospital[1,3]	Chicago	M Karp	10,261	8,959	2	4	2	50
Presbyterian Hospital[1]	Chicago	L A Gittelson	7,811	6 485	2	4	2	125
St Luke's Hospital[1,3]	Chicago	P W Searles	6 740	5 730	3	9	2	50
University of Chicago Clinics[1,3]	Chicago	E T Morch	9,290	7 003	4	9	2	175
University of Illinois Research and Educational Hospitals[1]	Chicago	M Sadove	3 464	2,974	4	12	2	110
Evanston Hospital[1]	Evanston Ill.	N Hess	6,394	2 023	2	4	2	200
St Joseph's Hospital[3]	Joliet Ill	L D Ruttle	6,225	4,980			2	
Indianapolis General Hospital[1]	Indianapolis	L B Muller	12,297	2 782	1	2	2	300
Indiana University Medical Center[1, 103]	Indianapolis	V K Stoelting	8,975	6,870	7	14	2	165
Memorial Hospital[1, 10, 106]	South Bend Ind	W H Lane	6,805	5 465	2	2	2	250
University Hospitals[1,3]	Iowa City	S C Cullen	11 183	6 781	7	14	2	75
University of Kansas Medical Center[1]	Kansas City Kan	P Lorhan	7 090	5 760	3	8	2	125
Louisville General Hospital[1,3]	Louisville, Ky	R P Bergner	7 000	6 000	1	5	2	83
Charity Hospital of Louisiana[1]-	New Orleans							
Independent Unit		J Adriani	4,145	2 024	6	12	2	100
Ochsner Foundation Hospital[1]	New Orleans	G B Grant	4,121	1,540	3	6	2	200
Eastern Maine General Hospital[1]	Bangor Maine	C Dwyer	6,238	4,826	1	2	2	100
Central Maine General Hospital[1]	Lewiston Maine	G Clapperton	4 058	3 052	2	2	2	150
Maine General Hospital[1]	Portland Maine	J R Lincoln	6 042	3,825	4	4	2	
Boston City Hospital[1,3]	Boston	P S Marcus	14,201	7 046		12	2	162
Lahey Clinic[1,3]	Boston	U H. Eversole	19,822	6 446	6	12	2	150
Massachusetts General Hospital[1,3]	Boston	H K Beecher	14 770	9 000	8	16	2	
Massachusetts Memorial Hospitals[1, 3, 135]	Boston	J Arrowood	3,[illegible]	2 031	3	6	2	100
New England Center Hospital[1,3]	Boston	B E Etsten	5 425	2,545	1	6	2	167
New England Deaconess Hospital[1, 3, 131]	Boston	L V Hand—F J Audin	5,534	2,606	3	6	2	200
New England Hospital[1,3]	Boston	E Bartlett	3 193	2,975	1	2	2	50
Peter Bent Brigham Hospital[1, 3, 330]	Boston	L D Vandam	3 418	2 429		1	2	42
St Elizabeth's Hospital[1,3]	Boston	L Zentgraf	9,195	3,827	2	2	2	125
Cambridge City Hospital[1-3]	Cambridge Mass	D R Branch	3,279	1 054	1	2	2	140
Mount Auburn Hospital[1,3]	Cambridge Mass	J H Buskirk	2 432	2,175	1	3	2	125
Holyoke Hospital[1,3]	Holyoke Mass	M. G Black	1,899	2,162		1	2	
Lowell General Hospital	Lowell Mass	E J Quinn	3 730	1,853	2	4	2	250
Newton Wellesley Hospital[1,3]	Newton Lower Falls Mass	R S Hunt	4 632	3 098	1	1	2	170
St Vincent Hospital[1,3]	Worcester Mass	W J Martin Jr	5 890	3,296	3	6	2	175
Worcester City Hospital[3]	Worcester Mass	W Allegree	6,318	2,255	2	2	2	215
Detroit Memorial Hospital	Detroit						2	
Henry Ford Hospital[1,3]	Detroit	P R Dumke	15 010	5,594	3	6	2	225
Providence Hospital[1, 3, 3]	Detroit	N M Bittrich	10,208	2,925	2	4	2	250
Receiving Hospital[1,3]	Detroit	F E. Greifenstein	7 875	1,575	5	12	2	254
Butterworth Hospital[1]	Grand Rapids Mich	M L Byrd	9,000	9,234	1	2	2	225
University of Minnesota Hospitals[1,3]	Minneapolis	R Knight	5 450	3 758	12	25	2	[illegible]
Mayo Foundation[1,3]	Rochester Minn	A Faulconer Jr	30,375	20 000	6	15	2	150
Research Hospital[1,3]	Kansas City Mo	M C Peterson	6 [illegible]	3,266	2	4	2	150
Barnes Hospital[1,3]	St Louis	J D Elder	16,[illegible]			8	2	[illegible]

Numerical and other references will be found on pages 414 to 416

2. ANESTHESIOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	First Year Residencies Offered [a]	Total Residencies Offered [a]	Length of Approved Program (Years)	Beginning Stipend (Month)
St John's Hospital [1-3]	St Louis	S Brown	6,903	2,255	1	2	2	150
St Mary's Group of Hospitals [1-3]	St Louis	J McNearney	12,543	4,289	1	2	2	65
University of Nebraska Hospital	Omaha	H H Davis	1,845	884	1	2	2	
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N H	R H Barrett	6,012	1 464	2	4	2	170
Medical Center Jersey City Hospital [1-3]	Jersey City, N J	W J Gleeson	6,353	3,931	3	5	2	66
St Joseph Hospital [1, 3]	Paterson, N J	E T Lawless	6,522	5,310	2	8	2	150
Albany Hospital [1, 3]	Albany, N Y	G Converse	7,599	5 254	4	8	2	75
Beth El Hospital [1-3]	Brooklyn	A O Goldfeder	8 030	2,352	2	8	2	150
Jewish Hospital [1-3 183]	Brooklyn	I Pallin	13,100	8,578	2	8	2	100
Kings County Hospital County Division [1, 3]	Brooklyn	M. Harmel	10 925	6,718	5	10	2	150
Maimonides Hospital [1-3]	Brooklyn	L Holzmann	9 075	5 109		3	2	75
St Catherine's Hospital [1-3]	Brooklyn	F P Ansbro	3,408	1 611		5	2	
Buffalo General Hospital [1, 3 192]	Buffalo	R N Terry	13,393	7,507	1	2	2	125
Edward J Meyer Memorial Hospital [1-3 113]	Buffalo	F D Babbage	8,232	2,763	2	4	2	179
Millard Fillmore Hospital [1-3]	Buffalo	E D Babbage	15,595	1,587	1	2	2	
Flushing Hospital and Dispensary [1, 3]	Flushing, N Y	E Apogi	9,118	7,808	1	2	2	200
Bellevue Hospital Center Division IV—New York University Post Graduate Medical School [1, 3]	New York City	E A Rovenstine	18 198	10,138	8	18	2	90
Beth Israel Hospital [1, 3]	New York City	S G Hershey	6,209	4,846	2	4	2	135
Flower and Fifth Avenue Hospitals [1, 3]	New York City	D E Brace	8 939	2 174	2	5	2	150
Hospital for Joint Diseases [1, 3 199]	New York City	A M Betcher	8,187	2,286	2	3	2	70
Lenox Hill Hospital [1, 3]	New York City	M Frick	8,785	6,617	2	3	2	180
Memorial Center for Cancer and Allied Diseases	New York City	W S Howland	6 992	1,072	3	7	2	200
Metropolitan Hospital [1-3]	New York City	D E Brace	3 939	2,174	2	5	2	150
Montefiore Hospital [1, 3]	New York City	E Kepes	2,189	1,465	2	3	2	75
Mount Sinai Hospital [1-3]	New York City	M Adelman	9,450	5,198	4	7	2	50
New York City Hospital [1-3]	New York City	D Bizzarri	2,618	2,181	2	4	1	
New York Hospital [1-3]	New York City	J F Artusio	9 028	6,115	5	10	2	34
New York Polyclinic Medical School and Hospital [1, 3]	New York City	J Milowsky	6,481	4,007	3	6	2	100
New York University Bellevue Medical Center University Hospital [1, 3]	New York City	E A Rovenstine	7,141	5,009	3	6	2	100
Presbyterian Hospital [1, 3]	New York City	E M Papper	22,698	19,341	11	26	2	
St Clare's Hospital [1-3]	New York City	G A Keating	8 766	791	1	2	2	125
St Luke's Hospital [1-3]	New York City	G E Burford	5 413	4,061	2	4	2	75
St Vincent's Hospital [1-3]	New York City	V J Collins	4,652	3 408	3	6	2	150
Genesee Hospital [1-3]	Rochester N Y	E Kistler	5 071	4 003	1	1	1	75
Highland Hospital [1-3]	Rochester, N Y	H Root	5,154	4,030	1	1	1	100
Rochester General Hospital [1-3]	Rochester N Y	V J Coviello	8,007	6 885	2	4	2	100
Strong Memorial Rochester Municipal Hospital [1, 3]	Rochester, N Y	N M Greene	7 906	7,235		4	2	42
Ellis Hospital [1-3]	Schenectady, N Y	H A Snell	7,341	4 858	1	2	2	150
State University of New York Medical Center [1]	Syracuse, N Y	E J Delmonico	16,055	8 934	1	4	2	191 66
Grasslands Hospital [1, 3]	Valhalla, N Y	H F Bishop	2 018	707	1	8	2	150
Duke Hospital [1, 3 279]	Durham, N C	C R Stephen	9 249	8,327	5	9	2	100
Mercy Hospital [1-3]	Canton Ohio	L L Frick	5,203	4 208	1	2	2	200
Christ Hospital [1]	Cincinnati	L E Larrick	8 666	2 942	1	2	2	200
City Hospital [1-3]	Cleveland	H Kretchmer	3,572	1,030		2	2	183
Cleveland Clinic Hospital [1-3]	Cleveland	D E Hale	7,434	4,040	2	4	2	175
Mount Sinai Hospital [1-3]	Cleveland	S Katz	11 802	9,815	2	4	2	215
St Luke's Hospital [1, 3]	Cleveland	B B Sankey	13 440	6 486	2	4	2	180
University Hospitals [1-3]	Cleveland	R A Hingson	15,577	12,752	5	10	2	125
Ohio State University Hospitals University Hospital [1-3 242]	Columbus, Ohio	J J Jacoby	8 962	6 724	10	19	2	150
Huron Road Hospital [1, 3]	East Cleveland	R J Whitacre	9 645	5,884	5	10	2	150
Marymount Hospital [1-3]	Garfield Heights, Ohio	N G De Piero	5,150	3,367	2	4	2	300
St Elizabeth Hospital [1-3]	Youngstown, Ohio	A J Bayuk	11,033	7,094	1	1	2	300
Youngstown Hospital [1-3]	Youngstown, Ohio	A J Fisher	14,515	10 755	4	8	2	125
University Hospitals [1-3-247]	Oklahoma City	H A Bennett	5,054	3,143	3	8	2	95
University of Oregon Medical School Hospitals and Clinics [1-3-253]	Portland Ore	F Haugen	5,205	2 521	3	6	2	85
Abington Memorial Hospital [1-3]	Abington, Pa	R S Masiello	6,707	5,345	1	4	2	200
Albert Einstein Medical Center								
Northern Division [1-3]	Philadelphia	L Fredericks	7,777	7 068	4	4	2	200
Southern Division [1-3]	Philadelphia	B Goldstein	4,893	4,127	3	3	2	200
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	H Stone	6 139	4 810	2	4	2	100
Hahnemann Medical College and Hospital [1-3]	Philadelphia	H S Ruth	9 918	3 036	7	12	2	
Hospital of the University of Pennsylvania [1-3]	Philadelphia	R Dripps	14,700	6,520	7	21	2	125
Pennsylvania Hospital [1-3]	Philadelphia	M. V Troncelliti	9 647	5,787	2	2	2	100
Presbyterian Hospital [1-3]	Philadelphia	S Schotz	5,374	1 948	2	4	2	100
Temple University Hospital [1-3]	Philadelphia	L W Krumperman	15,171	6 403	2	6	2	
Allegheny General Hospital [1, 3]	Pittsburgh	R L Patterson	10 872	10,232	4	4	2	
Mercy Hospital [1-3]	Pittsburgh	F F Foldes	11,705	2,865	6	12	2	175
Montefiore Hospital [1-3]	Pittsburgh	L G David	5,907	3,152	2	2	1	100
St Francis Hospital [1-3-451]	Pittsburgh	G J Thomas	10,814	4 540	2	3	2	150
Robert Packer Hospital [1-3]	Sayre Pa	W Brehm	6,043	4,604	2	4	2	150
Rhode Island Hospital [1-3]	Providence, R I	M Saklad	9 379	4 010	1	2	2	60
Roper Hospital [1-3]	Charleston, S C	J O Doerr	6,556	3,709	1	3	2	83
Baroness Erlanger Hospital [1-3]	Chattanooga, Tenn		6 642	2,238	4	6	2	
John Gaston Hospital [1-3]	Memphis, Tenn	M F Poe	10,090	6 569	1	2	2	35
Vanderbilt University Hospital [1-3]	Nashville, Tenn.	B H Robbins	5 316	4,032	2	3	2	50
Baylor University Hospital [1-3]	Dallas, Texas	E Weir	18 630	14,969	1	2	2	105
Parkland Hospital [1-3-270]	Dallas, Texas	M T Jenkins	3,341	1,827	2	4	2	150
University of Texas Medical Branch Hospitals [1, 3]	Galveston Texas	C R Allen	6 423		5	10	2	150
Hermann Hospital [1-3]	Houston Texas	L F Schuhmacher	17,578	4,018	2	4	2	100
Scott and White Memorial Hospital [1-3]	Temple, Texas	C H Gillespie	5 738	4,307	1	1	2	250
Bishop DeGoesbriand Hospital [1-3]	Burlington Vt				1	2	2	110
Mary Fletcher Hospital [1-3]	Burlington, Vt	J Abajian, Jr	2,609	1,032	2	8	2	100
Medical College of Virginia—Hospital Division [1-3]	Richmond, Va	W E Pembleton	14 660	4,040		5	2	75
Doctors Hospital	Seattle	P C Kundahl	5,923	4,200	1	2	2	125
King County Hospital, Unit No 1 (Harborview) [1-203]	Seattle	L E Morris	3 008	1,451	3	5	2	110
Virginia Mason Hospital [1-3-203]	Seattle	D C Moore	7,055	485	3	6	2	125
Tacoma General Hospital [1-3]	Tacoma, Wash	J J Bonica	6,042	3 411	2	4	2	
Ohio Valley General Hospital [1-3]	Wheeling, W Va	D E Greeneltch	6,786	4,750	2	4	2	300
niversity Hospitals State of Wisconsin General Hospital [1]	Madison, Wis	O S Orth	6,710	4 914	4	11	2	
San Juan City Hospital [1-3]	San Juan, P R	F J Gonzalez	5,848	3,971	1	2	2	150

Numerical and other references will be found on pages 414 to 416

3 CARDIOVASCULAR DISEASES

The following services have been approved for one year of training by the Council and the Subspecialty Board for Cardiovascular Disease of the American Board of Internal Medicine

Hospitals, 30, Assistant Residencies and Residencies, 58

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
FEDERAL							
UNITED STATES ARMY							
Letterman Army Hospital[1-3-66]	San Francisco	B E Pollock	240	31	1	1	
Fitzsimons Army Hospital[1-66]	Denver	E M Goyette	291	7		1	
Army Medical Center[1 3 66-67]	Washington D C	T W Mattingly	674	33	2	2	
Brooke Army Medical Center[3-66 10]	San Antonio Texas	W J Walker	417	29			
UNITED STATES NAVY							
U S Naval Hospital[1-3]	Bethesda Md	A. Zikmund			1	1	
VETERANS ADMINISTRATION							
Veterans Admin Hospital[1 3]	Long Beach Calif	D S Pocock	908	93		2	
Veterans Admin Hospital[1]	Hines Ill	L A Baker	1,306	103	2	2	
Veterans Admin Hospital[1 3]	Richmond Va	J P Williams	807	40		2	
NONFEDERAL							
George Washington University Hospital[1 3]	Washington D C	J M Evans	611	54		3	150
Michael Reese Hospital[1-3]	Chicago	L N Katz	872	47			
Indianapolis General Hospital[1]	Indianapolis	K. G Kohlstaedt			1	1	300
Indiana University Medical Center[1]	Indianapolis	J O Ritchey				1	215
Henry Ford Hospital[1-3]	Detroit	J W Keyes	1,105	73	4	6	225
Irvington House[1 3 4-418]	Irvington-on Hudson N Y	A. C DeGraff	227	1		3	250
Lenox Hill Hospital[1-3]	New York City	C E Kossmann			1	1	180
St Luke's Hospital[1-3]	New York City	G J Coffin			2	2	125
St Francis Sanatorium for Cardiac Children[1]	Roslyn L I N Y	L. M Taran	270	2	3	3	250
Duke Hospital[1 3 229]	Durham N C	E S Orgain	309	16		3	300
Cincinnati General Hospital	Cincinnati						
Cleveland Clinic Hospital[1 3]	Cleveland	L. H. Page	1,100	27	2	2	175
Ohio State University Hospitals							
University Hospital[1 3]	Columbus Ohio	R W Kissane				1	150
White Cross Hospital[1 228-244]	Columbus Ohio	R. W Kissane	534	11	1	1	825
Graduate Hosp of the University of Pennsylvania[1-3]	Philadelphia	S Bellet	198		2	2	
Pennsylvania Hospital[1-3]	Philadelphia	J B VanderVeer	621		2	2	20
Philadelphia General Hospital[1-3]	Philadelphia	S Bellet	7,505		6	6	113
Temple University Hospital[1 3]	Philadelphia	R A. Kern			1	1	
Presbyterian Hospital[1 3]	Pittsburgh	A. Koenig	478	80		1	125
St Francis Hospital[1-3]	Pittsburgh	A. P D Zmura	8,918	21		1	200
Rhode Island Hospital[1 3]	Providence R I	F B Cutts	4 420		1	1	110
University of Texas Medical Branch Hospitals[1 3]	Galveston Texas	G R. Herrmann			4	6	150

4 CONTAGIOUS DISEASES

The following services have been approved for one year of training by the Council on Medical Education and Hospitals

Hospitals, 11, Assistant Residencies and Residencies 33

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
NONFEDERAL							
Children's Hospital[1-3]	San Francisco	E B Shaw	456	11	1	1	150
Cook County Hospital[1-3]	Chicago	A. L Hoyne	949	88	1	1	50
Municipal Contagious Disease Hospital[1 3]	Chicago	H. W Spies	1,294	85	4	4	222
Massachusetts Memorial Hospitals[1-3]	Boston	L Weinstein	679	18	2	4	150
Worcester City Hospital[3]	Worcester Mass	J Cohen	720	2	1	1	215
Herman Kiefer Hospital[1-3]	Detroit	D C Young	1,587	44	3	8	232
Essex County Hospital for Contagious Diseases[1 3]	Belleville N J	E L Smith	1 472	16	2	2	200
Municipal Hospital for Contagious Diseases	Camden N J						
Willard Parker Hospital[1 3]	New York City	J L Kohn	5 729	18	10	10	
City Hospital[1 3]	Cleveland	F C Robbins	937	24	4	5	140
Philadelphia General Hospital—Northern Division[1 3]	Philadelphia	A. C LaBoccetta	1 072	7	2	2	112

5 DERMATOLOGY AND SYPHILOLOGY

The following services have been approved by the Council and the American Board of Dermatology and Syphilology

Hospitals, 78, Assistant Residencies and Residencies, 252

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered*	Total Residencies Offered*	Length of Approved Program (Years)	Beginning Stipend (Month)
FEDERAL								
UNITED STATES ARMY								
Letterman Army Hospital[1-3-66]	San Francisco	F H. Grauer	93	11,252			2	
Army Medical Center[1 3-66-67]	Washington D C	W N Piper	314	7 496	4	12	3	
Brooke Army Medical Center[3-66 10]	San Antonio Texas	M. P Moursund	269	13 035			3	
UNITED STATES NAVY								
U S Naval Hospital[1]	San Diego Calif	J H. Lockwood	495	13,252	2	2	2	
U S Naval Hospital[1 3]	Philadelphia	C D Bell	130	7,686	3	3	2	
UNITED STATES PUBLIC HEALTH SERVICE								
U S Public Health Service Hospital[1 3]	Staten Island N Y	B J Chester	676	10 611	1	3	2	
DEPARTMENT OF HEALTH EDUCATION AND WELFARE								
Freedmen's Hospital[1 3]	Washington D C	O W Freeman	10	1,500	1	1	2	
VETERANS ADMINISTRATION								
Veterans Admin Hospital[1-3]	Long Beach Calif.	M. E Obermayer	871	5,814	5	5	2	
Veterans Admin Hospital[1 3]	Los Angeles	V Newcomer	394	2,963	3	7	3	
Veterans Admin Hospital[1]	Hines Ill.	E A. Oliver	1 051	79	2	2	2	
Veterans Admin Hospital[1]	New Orleans	C B Kennedy	56	545	1	1	1	

Numerical and other references will be found on pages 414 to 416.

5 DERMATOLOGY AND SYPHILOLOGY—Continued

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered*	Total Residencies Offered*	Length of Approved Program (Years)	Beginning Stipend (Month)
Veterans Admin Hospital[1-3-1 *]	Fort Howard, Md	M Sullivan	103	1,678	1	3	3	
Veterans Admin Hospital[1, 3]	Minneapolis	H Michelson	188	151	1	2	3	
Veterans Admin Hospital[3-100]	New York City (Bronx)	A S Jacobson	321	2,110		3	3	
Veterans Admin Hospital[1]	Aspinwall Pa	S Crawford	180		1	1	1	
Veterans Admin Hospital[1, 3]	Philadelphia			825		1	1	
Veterans Admin Hospital[1]	Milwaukee	J Kanter—H R Foerster	327	1,840	1	2	2	

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered*	Total Residencies Offered*	Length of Approved Program (Years)	Beginning Stipend (Month)
Jefferson Hillman Hospital[1-3]	Birmingham, Ala	R O Noojin	133		2	3	3	
Lloyd Noland Hospital[1, 3]	Fairfield, Ala	P G Reque	135	4 624	1	1	1	225
Los Angeles County General Hospital[1]	Los Angeles	A F Hall	641	14,613	1	3	3	200
White Memorial Hospital[1, 3]	Los Angeles	M Couperus	32	4 608	1	2	2	
Stanford University Hospitals[1, 3]	San Francisco	E M Farber	53	9 161	1	3	3	80
University of California Hospital[1, 3]	San Francisco	F A Torrey	54			3	3	87
University of Colorado Medical Center								
Colorado General Hospital[1, 3 **]	Denver	O S Philpott	22	3,613	1	2	1	150
Denver General Hospital[1, 3]	Denver	A R Woodburne						
Georgetown University Hospital[1, 3]	Washington D C	F J Eichenlaub	20	1,627	1	2	2	
Cook County Hospital[1, 3]	Chicago	S M Bluefarb	720	7,580	3	3	3	50
Michael Reese Hospital[1, 3]	Chicago	A Buchholz	174	3,180	1	1	1	75
Northwestern University Medical Center[1, 3, 110]	Chicago	H Rattner		3 177	2	6	3	60
University of Chicago Clinics[1, 3]	Chicago	S Rothman	160	9,233	3	9	3	175
University of Illinois Research and Educational Hospitals[1]	Chicago	F E Senear	82	10 171		1	3	110
Indianapolis General Hospital[1]	Indianapolis	J E Dalton	87		2	4	3	300
University Hospitals[1, 3]	Iowa City	R Nomland	337	3,114	1	3	3	75
University of Kansas Medical Center[1]	Kansas City, Kan	R Sutton, Jr	10	766	1	1	1	125
Charity Hospital of Louisiana								
Independent Unit[1]	New Orleans	V M Henington	57	3,580		2	3	100
Louisiana State University Unit[1]	New Orleans	O B Kennedy	105	6 035	1	3	3	100
Tulane University Unit[1]	New Orleans	G E Burch	81	6 393	1	3	3	100
University Hospital[1, 3]	Baltimore	H M Robinson Sr		8 500		2	2	50
Boston City Hospital[1, 3]	Boston	B Appel	129	19 721	1	3	3	112
Massachusetts General Hospital[1, 3]	Boston	C N Frazier	372	9,885	1	4	3	
Massachusetts Memorial Hospitals[1-3]	Boston	H Mescon		6 595		1	1	100
University Hospital[1, 3]	Ann Arbor Mich	A C Curtis	659	6,300	4	12	3	140
Henry Ford Hospital[1-3]	Detroit	C S Livingood	159	20 959	1	4	3	225
Receiving Hospital[1, 3]	Detroit	L Shaffer	7	4 870	1	4	3	254
Minneapolis General Hospital[1, 3]	Minneapolis	C W Laymon	180	3,687	1	2	3	182
University of Minnesota Hospitals[1, 3]	Minneapolis	H E Michelson	133		1	3	3	162
Mayo Foundation[1, 3]	Rochester Minn	L A Brunsting	708	21,233	6	18	3	150
Ancker Hospital[1-3]	St Paul	J F Madden	243	2,894		1	3	181
Barnes Hospital[1-3]	St Louis	C W Lane			1	3	3	50
St Mary's Group of Hospitals[1, 3, 102]	St Louis	G V Stryker	69	3 458	1	3	3	65
Mary Hitchcock Memorial Hospital[1-3]	Hanover, N H	W C Lobitz, Jr	597	6,254	1	3	3	170
Kings County Hospital								
County Division[1, 3]	Brooklyn	C T Chiaramonte	392	10 630	2	2	1	150
Edward J Meyer Memorial Hospital[1, 3, 100]	Buffalo	E D Osborne	104		1	3	3	170
Bellevue Hospital Center								
Division IV—New York University Post Graduate Medical School[1-3]	New York City	M B Sulzberger	348	22,914	3	7	3	65
Metropolitan Hospital[1, 3]	New York City	E F Traub	78	9 859	1	1	1	150
Mount Sinai Hospital[1, 3]	New York City	S Peck	131	7,581	1	2	2	60
New York City Hospital[1, 3]	New York City	F P Lowenfish	821	15 417	1	2	1	98
New York Hospital[1, 3]	New York City	G Lewis		17,382	1	1	3	
New York Polyclinic Medical School and Hospital[1-3]	New York City	A C Cipollaro	10	5,925	1	3	3	100
New York University Bellevue Medical Center								
University Hospital (Skin and Cancer)[1-3]	New York City	M Sulzberger	213	88 965	2	6	3	50
Presbyterian Hospital[1-3, 207]	New York City	C T Nelson	931	85,406	1	2	3	
St Luke's Hospital[1-3]	New York City	L P Barker	45	9 003	1	1	2	75
Duke Hospital[1, 3, 229]	Durham, N C	J L Callaway	196	4 790	1	3	3	42
Cincinnati General Hospital[1]	Cincinnati	L Goldman	218	4 293	3	6	3	
City Hospital[1-3]	Cleveland	B J Persky	198	4,734	1	3	3	140
Cleveland Clinic Hospital[1-3]	Cleveland	E W Netherton	377	17 561	1	3	3	175
University Hospitals[1, 3]	Cleveland	H H Johnson	108	4,657	1	2	3	125
University Hospitals[1-3]	Oklahoma City	C P Bondurant	58		2	2	1	95
University of Oregon Medical School Hospitals and Clinics[1-3]	Portland Ore	T B Fitzpatrick	91	3 761	1	3	3	85
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	M H Samitz	107	2 904	2	2	2	
Hahnemann Medical College and Hospital[1, 3]	Philadelphia	H E Twining	16	4,359	3	3	1	
Hospital of the University of Pennsylvania[1-3]	Philadelphia	D Pillsbury	122	8 976	4	12	3	
Jefferson Medical College Hospital[1, 3]	Philadelphia	H B Decker	22	6 837	1	1	1	
Pennsylvania Hospital[1, 3]	Philadelphia	H Beerman		3 914	1	1	1	20
Philadelphia General Hospital[1, 3]	Philadelphia	C O Thomas	231		2	2	1	113
Skin and Cancer Hospital[1, 3, 473]	Philadelphia	C S Wright	522	34 900	4	4	2	50
University of Texas Medical Branch Hospitals[1, 3]	Galveston, Texas	J F Mullins	160	7 839	3	6	2	150
Jefferson Davis Hospital[1-278]	Houston Texas	E R Seale	111	2 932			1	
University of Virginia Hospital[1, 3]	Charlottesville Va	E P Cawley	226	8 922	2	6	3	50
Medical College of Virginia—Hospital Division[1, 3]	Richmond, Va	R W Fowlkes		10,760		1	1	100
University Hospitals								
State of Wisconsin General Hospital[1]	Madison, Wis	S A M Johnson	235	3 884	1	1	1	

6. GASTROENTEROLOGY

The following services have been approved for one year of training by the Council and the Subspecialty Board for Gastroenterology of the American Board of Internal Medicine

Hospitals, 20, Assistant Residencies and Residencies, 36

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
UNITED STATES ARMY							
Letterman Army Hospital[1-3-66]	San Francisco	W M Webb	470	1	1	1	
Army Medical Center[1, 3, 66, 67]	Washington, D C	E D Palmer	580	6			
Brooke Army Medical Center[3, 66]	San Antonio, Texas	B H Sullivan, Jr	632	21			

Numerical and other references will be found on pages 414 to 416

6 GASTROENTEROLOGY—Continued

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
VETERANS ADMINISTRATION							
Veterans Admin Hospital[1, 2]	Long Beach Calif	A E Dagradi	624	28		2	
Veterans Admin Hospital[1, 3]	Los Angeles	J A Halsted				1	
Veterans Admin Hospital	Memphis Tenn						
Veterans Admin Hospital[1, 3]	Richmond Va	J P Williams	684	12		2	

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
Michael Reese Hospital[1, 2]	Chicago	H. Necheles	240	2	2	2	
Touro Infirmary	New Orleans						
Massachusetts Memorial Hospitals[1, 3]	Boston	F Ingelfinger	[illegible]	14	4	4	
Henry Ford Hospital[1, 3]	Detroit	J G Mateer	922	14		7	225
Mayo Foundation[1, 2]	Rochester Minn						
Mount Sinai Hospital	New York City						
New York Polyclinic Medical School and Hospital[1, 3]	New York City	S Weiss	115	2	1	1	100
Duke Hospital[1, 2, 20]	Durham N C	J M Ruffin	316	3		2	200
Ohio State University Hospitals							
University Hospital[1, 2]	Columbus Ohio	C J Delor				1	150
Graduate Hospital of the University of Pennsylvania[1, 3]	Philadelphia	H L Bockus	533	6	2	2	150
Hospital of the University of Pennsylvania[1, 3]	Philadelphia	T Machella			2	6	
Jefferson Medical College Hospital[*, 2]	Philadelphia	J E Deitrick			1	2	
Temple University Hospital[1, 2]	Philadelphia	H Shay			1	3	

7 GENERAL PRACTICE

The following services have been approved for two years of training by the Council on Medical Education and Hospitals

Hospitals 139 Assistant Residencies and Residencies 541

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
UNITED STATES NAVY							
U S Naval Hospital[1]	San Diego Calif	A A Staderman			2	2	
U S Naval Hospital[1]	Chelsea Mass	R C Parker			1	1	
U S Naval Hospital[1, 3]	Portsmouth Va		24,081	172	1	2	

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
Maricopa County General Hospital[1, 2]	Phoenix Ariz	W Rogers			6	6	250
St Mary's Hospital[1, 2]	Tucson Ariz	F C Gregg	7,857	57	2	4	250
St Michael's Hospital[3]	Texarkana Ark	W B Harrell	7,207	29	2	2	
General Hospital of Riverside County[1]	Arlington Calif	H H Stone	[illegible]	42	5	5	370
Kern General Hospital[1]	Bakersfield Calif	J J Cawley			8	8	325
Los Angeles County General Hospital[1]	Los Angeles	P Berman			5	6	200
Methodist Hospital of Southern California[1, 3]	Los Angeles	N Blatherwick	2,491	27	2	2	175
Contra Costa County Hospital[1, 2]	Martinez Calif	H B Flanders	6,935	142	10	10	470
Sequoia Hospital[1, 2, 3, 4]	Redwood City Calif	H Pepper	7,973	54		5	300
Sacramento County Hospital[1, 3]	Sacramento Calif	L W Farrell	12,792	470	8	12	300
Monterey County Hospital[1]	Salinas Calif	W A Cassidy	3,090	109	7	7	350
St Francis Memorial Hospital[1, 2]	San Francisco	P R Westdahl	[illegible]	57	7	7	300
Community Hospital of San Mateo County	San Mateo Calif	J P Sweeney			6	6	
Sonoma County Hospital[1]	Santa Rosa Calif	H D Stalley	3,250	101	9	9	425
Tulare County General Hospital[1]	Tulare Calif	J J Feldmayer	2,782	95	6	6	355
Glockner Penrose Hospital[1, 3]	Colorado Springs Colo	C S Gydesen			1	2	200
St Francis Hospital[1, 2]	Colorado Springs Colo	R F Dent Jr	4,073	66	2	2	210
University of Colorado Medical Center							
Colorado General Hospital[1, 3, 22]	Denver	C J Smyth			8	24	150
Denver General Hospital[1, 3, 22]	Denver	C J Smyth					
Greenwich Hospital[1, 3]	Greenwich Conn	G Carter	7,307	131	1	1	150
Charlotte Hungerford Hospital[1, 2]	Torrington Conn	M E Globbe	5,950	80	2	4	160
Wilmington General Hospital[1, 2]	Wilmington Del.	F S Skura	7,012	59	8	10	250
Eastern Dispensary and Casualty Hospital[1, 2, 3]	Washington D C	J R Young	4,670		6	6	300
Halifax District Hospital[1, 3]	Daytona Beach Fla	F Slea	6,562	181		3	275
St Luke's Hospital	Jacksonville Fla	E E Leitner			2	4	225
St Vincent's Hospital[1, 2]	Jacksonville Fla	L M Wachtel			2	4	135
Sacred Heart Hospital[1, 3]	Pensacola Fla	T L Hoyt			5	5	200
Grady Memorial Hospital[1, 2]	Atlanta Ga	R H Oppenheimer			12	12	20
Columbus City Hospital[1]	Columbus Ga		10,474	114	4	4	
Macon Hospital[1, 3]	Macon Ga	F C McMillan	[illegible]		12	21	225
St Joseph Hospital[1, 2]	Alton Ill	H McCuistion	[illegible]	52	4	4	250
MacNeal Memorial Hospital[1, 3]	Berwyn Ill	J A Hunt	1,964	194	5	5	225
Grant Hospital[1, 3]	Chicago	K S Gustin	3,321	41	1	1	150
Illinois Masonic Hospital[1, 3]	Chicago	J S Poticha			1	1	115
St Mary of Nazareth Hospital	Chicago	S A Motto	11,178	119	1	2	150
South Shore Hospital	Chicago	S M. Gumbiner	6,407	[illegible]	2	2	250
Decatur and Macon County Hospital[1]	Decatur Ill	C P Birk			2	2	275
Methodist Hospital of Central Illinois[1, 2]	Peoria Ill	F C Green	[illegible]	84	2	2	200
Swedish American Hospital[1, 3]	Rockford Ill	C W Fredberg	[illegible]	150	1	2	
St Francis Hospital[1]	Beech Grove Ind	H F Kennedy	8,922		2	2	300
Methodist Hospital[1]	Gary Ind	R C Eades	[illegible]	177	2	4	200
St Margaret Hospital	Hammond Ind	F G Rudolph	[illegible]	71	2	4	300
Methodist Hospital[1, 2]	Indianapolis	J F Riggs	[illegible]		2	4	273
St Elizabeth Hospital[1, 3]	Lafayette Ind	K O Neumann	3,475	110	1	3	175
Memorial Hospital[1]	South Bend Ind	B A Bianchi	12,929	150	2	2	250
St Luke's Methodist Hospital[1, 2]	Cedar Rapids Iowa	S M Lehr	[illegible]	132	6	6	300
Broadlawns Polk County Hospital[1]	Des Moines Iowa	D H Kast	[illegible]	123	1	1	150
University Hospitals[1, 3]	Iowa City	W B Bean			6	6	75
St Francis Hospital[1, 3]	Wichita Kan	C P McCoy			2	3	275
Wesley Hospital[1-3]	Wichita Kan	J Tiller	[illegible]	31	1	1	150
Baton Rouge General Hospital[1]	Baton Rouge La	J M Hopper	13,491	62	4	4	300
St Patrick's Hospital[1, 3]	Lake Charles La	C E Barham	[illegible]			2	
St Anne's Hospital[3]	Fall River Mass	J C Corrigan	4,373	29	2	2	150
Cooley Dickinson Hospital[1, 3]	Northampton Mass	L N Durgin	[illegible]	62	4	4	150
Saratoga General Hospital	Detroit	F S Finch	[illegible]	34	3	3	
Hurley Hospital[1]	Flint Mich	L G Bateman			2	2	225
McLaren General Hospital[1]	Flint Mich	E C Mosier	8,911	93	3	4	225
St Joseph Hospital[1, 3, 30]	Flint, Mich	J J Gutow	[illegible]	73	6	12	250
Borgess Hospital[1, 3]	Kalamazoo Mich	F Doyle	[illegible]	[illegible]			275
Mercy Hospital[1]	Muskegon Mich	E M. Shebesta	[illegible]	41	2	2	300

7. GENERAL PRACTICE—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
St Joseph Mercy Hospital[1-3]	Pontiac, Mich	E J Dobski			2	2	325
St Luke's Hospital[1]	Saginaw, Mich	L J Morgrette	6 790	64	2	2	325
St Mary's Hospital	Saginaw Mich	T E Fleschner	5 072	51	1	2	350
James Decker Munson Hospital[1 3]	Traverse City, Mich	F G Swartz	5,641	43	2	2	300
Wyandotte General Hospital	Wyandotte, Mich	H K Butterworth	10,258	84	6	6	
Fairview Hospital[1-3]	Minneapolis	S P Stone	9 936	111	8	8	300
Lutheran Deaconess Home and Hospital[1-3]	Minneapolis	L A Benesh	9,154	101	3	3	200
Mount Sinai Hospital[1 3]	Minneapolis	P Gordon			4	4	200
Midway Hospital[3]	St Paul	A E Ritt	4,489	59	2	2	300
Mercy Hospital—Street Memorial[1 3 300]	Vicksburg, Miss	L J Clark	2,826	16	1	2	225
Missouri Methodist Hospital[1]	St Joseph Mo	H W Carle	8,845	62	2	2	250
Alexian Brothers Hospital[3 160]	St Louis	A D Hoffmann	8,004	57		6	200
St Anthony's Hospital[1-3]	St Louis	W T Gunn	6,372	20	3	4	150
Butte Community Memorial Hospital[1-3]	Butte, Mont	G I Podobnikar	5,766	41	2	5	300
Hunterdon Medical Center[1]	Flemington N J	R E Trussell	1,478	40	3	4	200
Mountainside Hospital[1-3]	Montclair, N J	C F Turner			1	1	175
Overlook Hospital[3]	Summit, N J	J F Johnston	7 040	99	1	1	200
Mercy Hospital	Buffalo	C F Banas	12 787	193	2	2	225
Millard Fillmore Hospital[1 3]	Buffalo	M Cheplove			1	2	
St Joseph's Hospital[1 3]	Far Rockaway, N Y	G E Christmann	5,826	43	7	7	250
Benedictine Hospital[1 3 417]	Kingston N Y	E F Shea—J A Olivet	4 495	25	2	2	250
Kingston Hospital[1 3 417]	Kingston, N Y	H L Rakov	5 465	70	2	2	
Our Lady of Victory Hospital[3]	Lackawanna, N Y	L J Makarewicz	4 012	43	1	1	175
Vassar Brothers Hospital[1 3]	Poughkeepsie, N Y	J F Rogers	8,670	76	2	2	250
City Hospital[1-3]	Akron Ohio	D E Leonard			4	6	235
Peoples Hospital[1 3]	Akron, Ohio	G K Parke			4	4	250
St Thomas Hospital[1-3]	Akron, Ohio	K Weidenthal			4	6	250
Mercy Hospital[1 3]	Canton Ohio	G C Dowell	13 972	87	1	2	200
Christ Hospital[1-434]	Cincinnati	K. E Martin			4	8	200
Good Samaritan Hospital[1 3]	Cincinnati	W O Schmidter			4	4	175
White Cross Hospital[1]	Columbus, Ohio	W P Smith, Jr	1 280	19	1	1	325
Euclid Glenville Hospital[1-3]	Euclid, Ohio	J B Price	8,720	62	4	4	200
Lima Memorial Hospital[1-3]	Lima Ohio	D L Becker	10 250	73	8	8	
St Rita's Hospital[1-3]	Lima, Ohio	J A Glorioso	1,747	71	1	2	225
Mercy Hospital[1 3]	Toledo, Ohio	C R Forrester	4,896	49	1	2	250
St Vincent's Hospital[1-3]	Toledo, Ohio	M A Schnitker			1	2	225
Toledo Hospital[1-3]	Toledo, Ohio	C S Mundy	2,858	16	1	2	200
University Hospitals[1-3-447]	Oklahoma City	I H Brown			12	12	65
Bradford Hospital[1-3]	Bradford, Pa	C L Luckett	1 768	21	3	3	250
Geo F Geisinger Memorial Hospital[1-3]	Danville, Pa					2	125
Thomas M Fitzgerald Mercy Hospital[1-3]	Darby, Pa	D T Sullivan			1	1	200
St Joseph Hospital[1]	Lancaster, Pa	C H Witmer	8 395	128	1	2	300
Sacred Heart Hospital[1 3]	Norristown Pa	J J McShea	1,105	34	2	2	400
St John's General Hospital[1]	Pittsburgh	J J Boucek			3	3	300
Community General Hospital[1-3]	Reading, Pa	C S Kring	2 982	60	1	1	300
Sharon General Hospital[1-3]	Sharon, Pa	J J Bellas	10 818	71	5	5	200
Memorial Hospital[1-3]	Pawtucket, R I	E J Mara	8,288		1	2	250
Greenville General Hospital[1 3]	Greenville S C	L Stoneburner	14,539	187	3	6	125
Spartanburg General Hospital[1]	Spartanburg, S C	H L Poole	17,388	133	3	8	200
Sacred Heart Hospital[1]	Yankton, S D	T H Sattler	1,324	87	3	5	300
St Mary's Memorial Hospital[1-3]	Knoxville Tenn	J L Raulston		8	1	2	300
Madison Sanitarium and Hospital[1-3]	Madison College Tenn	J C Gant	5 982	20	3	3	325
City County Hospital[1-3]	Ft Worth, Texas	L J Levy	5,955	124	5	6	150
St Joseph's Hospital[1-3]	Ft Worth, Texas	C H McCollum			2	2	250
St Mary's Infirmary[1-3-400]	Galveston, Texas	J A Magliola	2 827		4	4	
Nan Travis Memorial Hospital[1]	Jacksonville Texas	J M Travis	5,144	32	1	2	250
Shannon West Texas Memorial Hospital[1-3]	San Angelo, Texas	P J C Bryars Jr	5,804	60	4	4	
Baptist Memorial Hospital[1-3]	San Antonio, Texas	A Breuer	14,030		1	2	150
Robert B Green Memorial Hospital[1-3]	San Antonio Texas		443	89	1	2	125
Kings Daughters Hospital	Temple Texas				1	2	
Wichita General Hospital[1]	Wichita Falls, Texas	P Collins	6,854	62	4	4	300
Riverside Hospital	Newport News, Va	S H Mirmelstein	1,049	25	2	8	250
Retreat for the Sick[1 3]	Richmond, Va	G Vranian	246	6	3	8	200
Sheltering Arms Hospital[1-3]	Richmond Va	A Klein	105	22	1	1	250
Louise Obici Memorial Hospital	Suffolk Va	I J Stetson	5 279	56	1	3	
Maynard Hospital	Seattle	G N Rotton	6,381	53	2	2	200
Providence Hospital[1]	Seattle	S J Minkove	16 142	200	4	6	200
Sacred Heart Hospital[1-3]	Spokane Wash	R M O Brien	25 041	161	4	4	200
Bluefield Sanitarium[3]	Bluefield, W Va	H F Warden, Jr	1,994	81	4	4	500
Charleston General Hospital[1-3]	Charleston, W Va				2	2	175
Kanawha Valley Hospital[3]	Charleston, W Va	R J Jones	3,681	20	1	1	200
Memorial Hospital[1-3]	Charleston, W Va	J W Hash			4	4	
Ohio Valley General Hospital[1-3]	Wheeling, W Va	R W Lewellyn	2 580	25	2	4	300
Evangelical Deaconess Hospital[1-3]	Milwaukee	L M Peters	1 379	49	2	2	250
Milwaukee Hospital[1-3]	Milwaukee	S M Evans				1	150
St Michael Hospital[3-403]	Milwaukee	N Bauch	923		3	6	275

8 INTERNAL MEDICINE

The following services have been approved by the Council, the American Board of Internal Medicine, and the American College of Physicians through the Residency Review Committee for Internal Medicine as offering acceptable training in the specialty under any of the several programs leading to eligibility for examination by the American Board of Internal Medicine

Hospitals, 603, Assistant Residencies and Residencies, 4,848

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY								
Letterman Army Hospital[1-3-66]	San Francisco	W C Berry	2,903	37			3	
Fitzsimons Army Hospital[1-66]	Denver	A L Bradford	1 507	16			3	
Army Medical Center[1-3 66-67]	Washington, D C	F W Pruitt	1,921	40	7	19	1	

Numerical and other references will be found on pages 414 to 416

8 INTERNAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
FEDERAL								
Valley Forge Army Hospital [1-66]	Phoenixville Pa	R P Johnson	2 026	51	2	2	3	
William Beaumont Army Hospital [66]	El Paso Texas	M C Davidson	4,650	60	4	6	1	
Brooke Army Medical Center [3-66 250]	San Antonio Texas	R E Blount	5 903	95			3	
Madigan Army Hospital [1 3 66]	Tacoma Wash	W S George	756	4	2	2	1	
Tripler Army Hospital [1-66]	Honolulu T H	D J Sheehan	1 749	16	3	12	3	
UNITED STATES AIR FORCE								
U S Air Force Hospital (Scott Air Force Base)	Belleville Ill	E D Bayrd	2 025	5		2	1	
U S Air Force Hospital [1 3]	San Antonio Texas	N A Thornton	3 453	14	2	2	1	
UNITED STATES NAVY								
U S Naval Hospital [1 3]	Oakland Calif	O C Shaw	3 425	71			3	
U S Naval Hospital [1]	San Diego Calif	A L Lawler	2,347	74	7	7	3	
U S Naval Hospital [1 3]	Great Lakes Ill	J B Shuler	2,876	18	2	2	1	
U S Naval Hospital [1 3]	Bethesda Md	A Zikmund	3,586	60	7	7	3	
U S Naval Hospital [1]	Chelsea Mass	R C Parker	2,251	19	2	4	3	
U S Naval Hospital [1]	St Albans N Y	L E Bach	1,631	12			3	
U S Naval Hospital [1 3]	Philadelphia	L J Pope	2,970	60	6	6	3	
U S Naval Hospital [1 3]	Portsmouth Va	E F Kline	5 460	23	2	2	1	
UNITED STATES PUBLIC HEALTH SERVICE								
U S Public Health Service Hospital [1 3]	San Francisco	A A Doerner	2 048	53	1	3	3	
U S Public Health Service Hospital [1 3]	New Orleans	R H Smith	1,916	50	1	4	3	
U S Public Health Service Hospital [1-1 3]	Baltimore	C G Spicknall	2,291	47	2	6	3	
National Institutes of Health—Clinical Center National Heart Institute [1]	Bethesda Md	L Terry	152	4		8	1	
U S Public Health Service Hospital [350]	Boston	W H Stimson	1 414	18	1	3	3	
U S Public Health Service Hospital [1-3]	Staten Island N Y	V J Dorset	2,503	74	2	6	3	
U S Public Health Service Hospital	Seattle	R L Griffith	1,553	50	1	3	3	
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE								
Freedmen's Hospital [1 3]	Washington D C	J B Johnson	995	108	3	8		
VETERANS ADMINISTRATION								
Veterans Admin Hospital [1]	Birmingham Ala	T R Harrison	1 454	68	6	18	2	
Veterans Admin Hospital [1 3]	Tuskegee Ala	E T Odom	2,245	72	6	12	3	
Veterans Admin Hospital [1 3 323]	Little Rock Ark	H R Hipp	2 479	100	4	4	3	
Veterans Admin Hospital [1 3 29]	Long Beach Calif	D W Leik	1,837	117	31	31	3	
Veterans Admin Hospital [1 3]	Los Angeles	R O Egeberg	8,569	607	20	54	3	
Veterans Admin. Hospital [1]	San Francisco	F M Willett	1,896	187	14	23	2	
Veterans Admin Hospital [1 3]	Denver	T P Sears	2 407	112	7	19	3	
Veterans Admin Hospital [1]	West Haven Conn	P Kunkel	245	21	10	16	2	
Veterans Admin Hospital [1 3 302]	Washington D C		2,078	175		11	3	
Veterans Admin Hospital [1 3-69]	Coral Gables Fla	J M Rumball	2 462	182	5	15	3	
Veterans Admin Hospital [1- 3-76]	Atlanta Ga	M. Michael Jr	1 758	110	8	15	3	
Veterans Admin Hospital [1 4 74]	Augusta Ga	J G Bohorfoush	1 472	57	3	6	2	
Veterans Admin Research Hospital	Chicago	(See Northwestern University Medical Center Chicago Ill.)						
Veterans Admin (West Side) Hospital	Chicago	H J Zimmerman	1,558	62	8	20	3	
Veterans Admin Hospital [1]	Hines Ill	L A. Baker	7,305	201	17	53	3	
Veterans Admin Hospital [1 3 101 51]	Indianapolis	W A. Christian	1,891	165	4	10	3	
Veterans Admin Hospital [1]	Des Moines Iowa	P G Kell	1,595	84	4	10	3	
Veterans Admin Hospital [1 3 108]	Iowa City	W M. Kirkendall	1 606	76	6	14	3	
Veterans Admin Hospital [1 3]	Topeka Kan	R. Chess	1,273	49	2	6	3	
Veterans Admin Hospital [1 3 366]	Wadsworth Kan	M. Slavin	1,303	166	4	8	3	
Veterans Admin Hospital [1 3]	Wichita Kan	D Givner	772	62	3	3	3	
Veterans Admin Hospital [1 3 111]	Louisville Ky	J R Gott	1,203	78	6	14	3	
Veterans Admin Hospital [1]	New Orleans	C A. Jones	2 001	119	8	14	3	
Veterans Admin Hospital [1 3]	Fort Howard Md	F G Dickey	1,904	114	4	9	3	
Veterans Admin Hospital [1 3]	Perry Point, Md	S Goldgraben	1 078	14	2	4	3	
Veterans Admin Hospital [1 3]	Boston (Jamaica Plain) Mass	M. B Strauss	5,802	213	14	29	3	
Veterans Admin Hospital [1 3]	Dearborn Mich	H J Kullman	3,559	214	5	15	3	
Veterans Admin Hospital [1 3 398]	Minneapolis	E B Flink	1,829	152	10	36	3	
Veterans Admin Hospital [1 3 402]	Kansas City Mo	T Rankin	1,677	79	4	10	3	
Veterans Admin Hospital [1 3]	St Louis	J W Berry	56	3		12	3	
Veterans Admin. Hospital [1 3]	Lincoln Neb	J R Gordon	1 092	43	2	6	3	
Veterans Admin Hospital [1]	Omaha	J R Walsh	1,348	69	4	12	3	
Veterans Admin Hospital [1]	Albuquerque N Mex	W S Taylor	1,899	66	5	10	2	
Veterans Admin Hospital [1-1 6]	Albany N Y	F M Woolsey Jr	3 009	120	6	18	3	
Veterans Admin Hospital [1]	Bath N Y	H W Baum	1,849	77	1	3	3	
Veterans Admin Hospital [1 3]	Brooklyn	P W Spear	2,923	208	11	31	3	
Veterans Admin Hospital [1 3 415]	Buffalo	G W Bissell	2 402	118		12	3	
Veterans Admin Hospital [3]	New York City (Bronx)	A. S Jacobson	3,666	242	12	41	2	
Veterans Admin Hospital	Durham N C						2	
Veterans Admin Hospital [1 3 443]	Cleveland	N P Shumway	3,030	141	8	24	3	
Veterans Admin Hospital [1 3]	Dayton Ohio	A. Tomasulo	2,302	203	12	22	3	
Veterans Admin Hospital [1]	Oklahoma City	J F Hammarsten	1,323	54	6	17	3	
Veterans Admin Hospital [1-3]	Portland Ore	Z T Wirtschafter	2 068	165	6	20	2	
Veterans Admin Hospital [1]	Aspinwall Pa	R Schwartz	2,851	191	6	18	3	
Veterans Admin Hospital [1 3]	Philadelphia	H P Close	865	41	5	15	3	
Veterans Admin Hospital [1 3 32]	Providence R I	H A. Lawson	1,945	80	2	4	2	
Veterans Admin Hospital [3]	Columbia S C	S L. Zimmerman	3,197	93	2	6	3	
Veterans Admin Hospital [1 3 64]	Memphis	B R Gendel	4,387	134	15	36	3	
Veterans Admin Hospital [1]	Nashville Tenn	R France	2,232	83	6	11	3	
Veterans Admin Hospital [1 3 464]	Dallas Texas	O W Sensenbach	1,212	90	3	10	3	
Veterans Admin Hospital [1 3 471]	Houston Texas	H D Bennett	845	53	8	24	3	
Veterans Admin Hospital [1,3]	McKinney Texas	B Friedman	2,928	58	11	21	3	
Veterans Admin Hospital	Salt Lake City	H. Brown	1 078	65	4	10	3	
Veterans Admin Hospital [1]	White River Jct Vt	J L Grant	3,861	125	5	17	3	
Veterans Admin Hospital [1 3]	Richmond Va	J P Williams	5,568	106	11	27	3	
Veterans Admin Hospital [1]	Seattle	R. S Evans	1 631	161	8	15	2	
Veterans Admin Hospital [1 3]	Martinsburg W Va	H Field Jr	844	52	3	9	2	
Veterans Admin Hospital [1]	Milwaukee	M. Garry	762	59	16	25	3	
Veterans Admin Hospital [1 3]	San Juan P R	R Rodriguez Molina	1,210	16	2	5	2	
NONFEDERAL								
Carraway Methodist Hospital [1 3]	Birmingham Ala	O C McCarn— E D Lineberry	2,151	27	1	3	3	250
Jefferson Hillman Hospital [1 3 312]	Birmingham Ala	T R Harrison	3,509	123	8	15	3	
Lloyd Noland Hospital [1 3]	Fairfield Ala	G M. Hankins	2,486	43	3	[illegible]	3	225

Numerical and other references will be found on pages 414 to 416

8 INTERNAL MEDICINE—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
City Hospital	Mobile, Ala	J H Little	1 119	54	1	1	1	200
St Mary's Hospital[1-3]	Tucson, Ariz	E R Baldwin	5,951	53	2	6	3	250
Tucson Medical Center[1-3]	Tucson, Ariz	C L Robbins	916	28	2	2	1	200
Arkansas Baptist Hospital[1]	Little Rock, Ark	A A Pringos	2,490	58	1	1	1	225
University Hospital[1, 3, 56, 515]	Little Rock, Ark	J T Wortham	766	42	6	12	1	190
General Hospital of Riverside County[1]	Arlington, Calif	H H Stone	1,879	106	1	1	1	491
Kern General Hospital[1]	Bakersfield, Calif	L Yaussy	2,441	160	3	7	3	325
Herrick Memorial Hospital[1-3]	Berkeley, Calif	H I Harvey	2 863	75	1	3	3	
San Joaquin General Hospital[1]	French Camp, Calif	G K Wever	2 398	217	2	4	3	235
General Hospital of Fresno County[1, 3]	Fresno, Calif	J M Masten	3 360	87	2	4	2	231
Glendale Sanitarium and Hospital[1]	Glendale, Calif	H J Hoxie	4 230	118	1	3	3	161
Seaside Memorial Hospital[1, 3]	Long Beach, Calif	J T Hardesty	3 132	49	3	4	2	150
California Hospital[1, 3, 47]	Los Angeles	W Wessels	2 805	125	2	4	3	150
Cedars of Lebanon Hospital[1, 3]	Los Angeles	I Kahn—L Gunther	3 160	135	1	3	3	225
Hospital of the Good Samaritan[1, 3]	Los Angeles	C L Davison	2,053	34	2	6	3	200
Los Angeles County General Hospital[1]	Los Angeles	E Shapiro	15,770	820	6	31	3	200
Presbyterian Hospital—Olmsted Memorial[1, 3]	Los Angeles	J F McNabb	1 941	40	1	3	3	125
Queen of Angels Hospital[1, 3]	Los Angeles	M Blacker	5,805	117	1	3	2	
St Vincent's Hospital[3]	Los Angeles	J B Doyle	2,446	74	1	3	1	
White Memorial Hospital[1, 3]	Los Angeles	J E Peterson	1 291	73	1	3	3	
Highland Alameda County Hospital[1-3, 31, 44]	Oakland, Calif	T C McCleave	5 170	192	4	11	3	195
Kaiser Foundation Hospital[1, 3]	Oakland, Calif	M F Collen	2,206	125	4	8	3	175
Samuel Merritt Hospital[1-12]	Oakland, Calif	F B Taylor	1,009	89	1	2	1	170
Collis P and Howard Huntington Memorial Hospital[1, 3, 55]	Pasadena, Calif	D Proctor	2,300	131	1	3	3	240
San Bernardino County Charity Hospital	San Bernardino, Calif	W L Cover	1,385	188	4	4	1	100
Mercy Hospital[1, 3]	San Diego, Calif	E M Fetter	2 279	101	1	4	3	175
San Diego County General Hospital[1-3]	San Diego, Calif	W J Tighe	2 006	209	4	7	3	130
Children's Hospital[1-3]	San Francisco	D W Atkinson	945	12	1	2	2	160
Franklin Hospital[1, 3, 47]	San Francisco	C G Mote	1 783	36	1	4	1	116
French Hospital[1, 3]	San Francisco	D L Wilbur	3 406	35	2	3	2	175
Mary's Help Hospital[1, 3]	San Francisco	F Rochex	1,380	31	1	2	1	250
Mount Zion Hospital[1-3]	San Francisco	J J Sampson	3,303	110	3	6	3	150
St Joseph's Hospital[1-3]	San Francisco	M E Leonard	1 974	50	1	1	1	150
St Luke's Hospital[1-3]	San Francisco	E L Bruck	2 620	93	2	5	3	200
St Mary's Hospital[1, 3]	San Francisco	J J McGinnis	1,688	40	2	5	3	150
San Francisco Hospital								
Stanford University Service[1, 3]	San Francisco	J K Lewis	1 975	181	3	5	3	175
University of California Service[1, 3]	San Francisco	H D Brainerd	1 820	108	3	5	3	175
Southern Pacific General Hospital[1, 3]	San Francisco	R E Allen	4 654	68	2	6	3	160
Stanford University Hospitals[1, 3]	San Francisco	A L Bloomfield	2 635	91	5	11	3	80
University of California Hospital[1, 3, 36, 40-48]	San Francisco	T L Althausen	1 460	50		10	3	87
Santa Clara County Hospital[1]	San Jose, Calif	R O Hayden	779	118	2	4	3	260
Community Hospital of San Mateo County	San Mateo, Calif	W F Knorp	871	79	1	1	1	
Santa Barbara Cottage Hospital[1, 3, 45]	Santa Barbara, Calif	J W Dalton	2 489	48	3	6	3	140
Harbor General Hospital[1, 3, 31]	Torrance, Calif	F Kellogg—W P Martin	3 512	296	6	18	3	200
Glockner Penrose Hospital[1, 3]	Colorado Springs, Colo	C S Gydesen	939	20	1	1	1	200
Mercy Hospital[1, 3]	Denver	W L Bennett	2 813	58	2	4	2	
Presbyterian Hospital[1, 3]	Denver	H A Bradford	1,467	42	1	2	2	160
St Anthony's Hospital[1-3]	Denver	F R Calhoun	1 544	33	1	3	3	175
St Joseph's Hospital[1]	Denver	G Curfman	3 121	84	1	3	3	160
St Luke's Hospital[1, 3]	Denver	J O Mendenhall			1	1	1	160
University of Colorado Medical Center								
Colorado General Hospital[1, 3, 22]	Denver	G Meiklejohn	974	133	6	16	3	150
Denver General Hospital[1, 3, 22]	Denver	G Meiklejohn	2 400	200			3	
Colorado State Hospital[1, 3]	Pueblo, Colo	G R Curless	1,220	111	3	6	3	
Corwin Hospital[1]	Pueblo, Colo	R H Finney	8,965		1	1	1	125
Bridgeport Hospital[1-3]	Bridgeport, Conn	I S Zaur	2,320	82	2	4	2	125
St Vincent's Hospital[1-3]	Bridgeport, Conn	V Lynch	3 160	63	1	2	2	300
Greenwich Hospital[1-3]	Greenwich, Conn	J Lockwood	1 903	92	1	2	2	150
Hartford Hospital[1, 3-60, 313]	Hartford, Conn	M T Root	4,028	282	11	18	3	75
I T McCook Memorial Hospital[1-3]	Hartford, Conn	W F Smith	842	76	1	2	2	250
St Francis Hospital[1, 3-5]	Hartford, Conn	J R Lenehan	4,204	116	1	3	3	100
New Britain General Hospital[1-3]	New Britain, Conn	J O White	2 035	93	1	3	2	160
Grace New Haven Community Hospital[1-3, 59]	New Haven, Conn	P B Beeson—T S Evans	3 708	222	9	14	3	50
Hospital of St Raphael[3, 60]	New Haven, Conn	T S Evans	1 033	112	3	7	3	125
Lawrence and Memorial Associated Hospitals[1-3]	New London, Conn	A Labensky	2,282	75	2	2	1	300
Norwalk Hospital[1, 3]	Norwalk, Conn	D L Ellrich	1 793	60	2	2	1	160
St Mary's Hospital	Waterbury, Conn	W Finkelstein	3 614	55	2	4	3	225
Waterbury Hospital[1]	Waterbury, Conn	O J Bizzozero	4 466	141	2	6	3	225
Delaware Hospital[1-3]	Wilmington, Del	L B Flinn	2,250	145	2	5	3	180
Memorial Hospital[1-3]	Wilmington, Del	L P Lang	1 761	98	1	3	3	175
Wilmington General Hospital[1-3]	Wilmington, Del	J R Durham, Jr	1 619	38	2	2	3	250
Central Dispensary and Emergency Hospital[1-3]	Washington, D C	J Minor	2,598	92	2	5	3	225
District of Columbia General Hospital[1-3]	Washington, D C	H H Hussey						
		M J Romansky	4 145	339	10	18	3	100
Doctors Hospital[1-3]	Washington, D C	A McNitt	1,881	79	1	2	1	150
Garfield Memorial Hospital[1-3]	Washington, D C	J L Thompson, Jr	1,049	80	1	3	3	210
Georgetown University Hospital[1-3, 120, 200]	Washington, D C	H Jeghers	2,635	173	9	29	3	
George Washington University Hosptial[1, 3]	Washington, D C	T McP Brown	3 275	47	1	8	3	130
Providence Hospital[1-3]	Washington, D C	J Finnegan	1 992	71	1	3	3	200
Duval Medical Center[1-3]	Jacksonville, Fla	K B Hanson	1 933	95	2	4	3	160
Riverside Hospital[1-3]	Jacksonville, Fla	D White	1 008	11	1	1	1	150
St Luke's Hospital	Jacksonville, Fla	J L Borland	2 122	25	1	1	1	225
St Vincent's Hospital[1, 3]	Jacksonville, Fla	L E Geeslin	2 126	63	2	3	3	175
Jackson Memorial Hospital[1-3]	Miami, Fla	F Stewart	4,505	296	6	11	3	75
Mount Sinai Hospital[1-3]	Miami Beach, Fla	D A Nathan	2 885	66	1	3	3	250
St Francis Hospital[1-3]	Miami Beach, Fla	F A Reed	2 434	35	2	2	1	200
Orange Memorial Hospital[1-3]	Orlando, Fla	F Mathers	2 054	73	1	3	2	
Tampa Municipal Hospital[1-3]	Tampa, Fla	H P Hampton	4 820	120	1	1	1	125
Crawford W Long Memorial Hospital[1, 3]	Atlanta, Ga	L Henry	3,641	66	4	7	3	110
Georgia Baptist Hospital[1-3]	Atlanta, Ga	H M Davison	364	6	2	4	3	250
Grady Memorial Hospital[1-3]	Atlanta, Ga	E B Ferris, Jr	2,346	252	0	16	3	[illegible]
Piedmont Hospital[1]	Atlanta, Ga	C Smith	1 034	18	1	3	3	150
St Joseph's Infirmary[1-3]	Atlanta, Ga	W C Waters	1 506	44	1	2	3	150
University Hospital[1-3, 7]	Augusta, Ga	V P Sydenstricker	2 877	81	4	10	3	100
Emory University Hospital[1, 3]	Emory University, Ga	E Ferris	3 307	79	6	12	3	[illegible]
Alexian Brothers Hospital[3]	Chicago	F Knoepfler	1 861	79	2	2	1	[illegible]
American Hospital[1-3]	Chicago	M Afremow	2 693	73	2	2	2	[illegible]
Augustana Hospital[1-3]	Chicago	C A Hedberg	8 740	119	2	4	3	150

Numerical and other references will be found on pages 414 to 416

8 INTERNAL MEDICINE—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered	Total Residencies Offered	Length of Approved Program (Years)	Beginning Stipend (Month)
Columbus Hospital [3,52]	Chicago	E F Foley	1,568	45	2	6	3	150
Cook County Hospital [1,3,53]	*Chicago*	*E F Foley*	17 471	707	36	36	3	60
Englewood Hospital [3]	Chicago	F Stenn	1,898	85	1	1	1	200
Grant Hospital [1,3]	Chicago	A Vander Kloot	2 019	95	2	2	3	150
Henrotin Hospital [1,3]	Chicago	F K Hick	650	18	1	1	1	200
Hospital of St Anthony de Padua [1,3]	Chicago	F L Foran	1,514	35	2	2	2	250
Illinois Central Hospital [1,3]	Chicago	L H Sloan	2 664	96	2	2	1	200
Illinois Masonic Hospital [1,3]	Chicago	R H. Hayes	4,184	173	2	5	2	115
Loretto Hospital [1,3]	Chicago	S G Plice	1,120	29	1	1	1	200
Lutheran Deaconess Home and Hospital [3]	Chicago	C O Solem	1,869	63	2	2	1	200
Mercy Hospital	Chicago	C F O Brien	2 176	40	4	8	3	100
Michael Reese Hospital [1,3,17]	Chicago	R Levine	3,314	110	4	12	3	50
Mount Sinai Hospital [1,3]	Chicago	L Feldman	2 046	92		5	3	
Northwestern University Medical Center [3]	Chicago	A R Colwell	10 092		15	45		
Chicago Wesley Memorial Hospital [1,3]	Chicago	P S Rhoads	4,898	119			3	50
Passavant Memorial Hospital [1,3]	Chicago	A R Colwell	2 819	78			3	50
Veterans Admin Research Hospital	Chicago	C Borden	27				1	
Evanston Hospital [1]	Evanston Ill	L D Snorf	2,839	155			3	
Norwegian American Hospital [1,3]	Chicago	M Gethner	1,666	62	2	2	1	225
Presbyterian Hospital [1]	Chicago	J A Campbell	3 677	100	3	7	3	125
Provident Hospital [1,3]	Chicago	A F Connor	1 109	24	1	3	3	200
Ravenswood Hospital [1,3]	Chicago	B L Sargent	2,236	98	2	2	2	75
St Anne s Hospital [1]	Chicago	S G Plice	2,272	48	2	2	1	200
St Joseph Hospital [1,3]	Chicago	L Hines	1,261	35	1	2	1	200
St Luke s Hospital [1,3]	Chicago	H Wakefield	3 934	157	3	8	3	60
St Mary of Nazareth Hospital	Chicago	S A Motto	2,591	72	1	3	1	150
University of Chicago Clinics [1,3]	Chicago	W Adams	3 109	118	8	22	3	175
University of Illinois Reseach and Education Hospitals [1,69]	Chicago	H F Dowling	1 074	57	4	13	3	110
Women and Children s Hospital	Chicago	M. Ortmayer	1 142	21	1	1	1	100
Woodlawn Hospital [1,3]	Chicago	W DeYoung	1,963	6	1	1	1	
St Francis Hospital [1,3]	Evanston Ill	R M. Jones	2,339	143	2	4	3	175
Little Company of Mary Hospital [1,3]	Evergreen Park Ill.	R E Lee	3 482	36	2	2	1	175
West Suburban Hospital	Oak Park Ill.	E F Traut	1,585	63	2	2	1	225
St Francis Hospital [1,3]	Peoria Ill	H A. Warren	4,540	146	2	3	2	225
Clinic Hospital [1]	Bluffton Ind	A O Nickel	3,214	28	1	3	3	300
Indianapolis General Hospital [1]	Indianapolis	P J Fouts	1 708	141	4	12	3	300
Indiana University Medical Center [1]	Indianapolis	J O Ritchey	2,201	111	3	7	3	165
Methodist Hospital [1,3]	Indianapolis	I J Kwitny	2 783	61	1	3	3	273
St Vincent s Hospital [1]	Indianapolis	R M Vandivier	1,677	95	1	3	3	275
St Elizabeth Hospital [1,3]	Lafayette Ind.	R A Flack	2,991	78	1	3	3	175
Ball Memorial Hospital [3]	*Muncie Ind*	R R Owens	1,177	41	2	2	3	200
Iowa Methodist Hospital [1,3]	Des Moines Iowa	H J Smith	2,670	78	1	3	3	150
University Hospitals [1,3]	Iowa City	W B Bean	3 058	124	6	23	3	73
Halstead Hospital [1,3]	Halstead, Kan	L E Peckenschneider	3,125	27	3	3	3	250
University of Kansas Medical Center [1,109]	Kansas City Kan	E G Dimond	2 178	93	4	11	3	125
St Francis Hospital [1,3]	Wichita Kan	W C Goodpasture	6,516	165	3	3	1	275
Wesley Hospital [1,3]	Wichita Kan	E Mills	2,647	36	1	8	3	150
Good Samaritan Hospital	Lexington Ky	J Scott	2,142	42	1	1		225
St Joseph Hospital [3]	Lexington Ky	J W Scott	2,173	63	2	4	2	230
Kentucky Baptist Hospital	Louisville Ky	R Denham	2 756	43	2	2	1	181
Louisville General Hospital [1,3]	Louisville Ky	J M Kinsman	1 717	113	8	15	3	181
St Joseph Infirmary [1,3]	Louisville Ky	G W Pedigo Jr	3,514	95	1	3	3	185
Charity Hospital of Louisiana								
Independent Unit [1]	New Orleans	J O Weilbaecher Jr	1,626	119	3	8	3	100
Louisiana State University Unit [1]	New Orleans	W R Akenhead	3,346	171	5	13	3	100
Tulane University Unit [1]	New Orleans	G E Burch	3 748	195	5	13	3	100
Hotel Dieu Sisters Hospital [1]	New Orleans	E Matthews	2,916	70	2	4	2	200
Ochsner Foundation Hospital [1]	New Orleans	W Arrowsmith	2,192	33	4	12	3	200
Southern Baptist Hospital [1]	New Orleans	K Nix	6 039	97	1	3		225
Touro Infirmary [1]	New Orleans	S Jacobs	5,158	111	2	6	3	100
Confederate Memorial Medical Center [1]	Shreveport La	M D Hargrove	4,282	146	3	9	3	150
Central Maine General Hospital [1]	Lewiston Maine	M. A. Chapin	1,576	48	1	1	1	150
Maine General Hospital [1]	Portland Maine	E R Blaisdell	1,947	64	2	6	3	
Baltimore City Hospitals [1,3,118]	Baltimore	G S Mirick	1,958	124	4	9	3	50
Church Home and Hospital [1,3]	Baltimore	Z R Morgan	1,021	43	1	3	3	200
Franklin Square Hospital [1,3]	Baltimore	W H Smith	793	22	1	3	3	
Hospital for Women [1,3]	Baltimore	W Fort	470	10	1	3	3	220
Johns Hopkins Hospital [1,3,8]	Baltimore	A M Harvey	4 414	324	0	16	3	20
Lutheran Hospital [1,3]	Baltimore	L A M. Krause	1 445		4	6	3	220
Maryland General Hospital [1-3]	Baltimore	E F Cotter	1 027	30	3	5	2	275
Mercy Hospital [1,3]	Baltimore	H R Peters	1 460	69	2	5	3	275
Provident Hospital and Free Dispensary [1,3]	Baltimore	L Martin	609	25	3	3	2	
St Agnes Hospital [1-3,12]	Baltimore	L P Gundry	2,345	46	2	5	3	
St Joseph s Hospital [1,3]	Baltimore	F J Geraghty	1 721	44	3	4	2	225
Sinai Hospital [1,3]	Baltimore	M Sherry	1 735	61	3	8	3	110
South Baltimore General Hospital [1,3]	Baltimore	L P Gundry	923	32	1	2	2	170
Union Memorial Hospital [1,3]	Baltimore	W A Baetjer	2 001	101	4	6	3	115
University Hospital [1,3]	Baltimore	M O Pincoffs	2,273	135	6	19	3	50
Beverly Hospital [1]	Beverly Mass	A E Parkhurst	1 765	82	1	1	1	100
Beth Israel Hospital [1,3]	Boston	H Blumgart	2 741	103	4	10	3	100
Boston City Hospital [1,3,16,3,4]	Boston		12 497	602	24	45	3	112
Carney Hospital [1,3]	Boston	N A. Welch	894	19	2	3	2	125
Faulkner Hospital [1,3]	Boston	J R Graham	978	35	2	3	2	132
Lahey Clinic [1,3]	Boston	F N Allan	5 679	39	10	35	3	150
Massachusetts General Hospital [1,3,145]	Boston	W Bauer	6,564		10	14	3	
Massachusetts Memorial Hospitals [1,3]	Boston	C Keefer	1 625	70	3	21	3	150
New England Center Hospital [1,3,15]	Boston	S Proger	4,832	83	11	19	3	83
New England Deaconess Hospital [1,3,140]	Boston	L H Hoyt—H F Root	3 495	69	6	9	2	150
Peter Bent Brigham Hospital [1,2,3,9]	Boston	G W Thorn	2,885	173	6	19	3	167
St Elizabeth s Hospital [1,3]	Boston	S McGinn	1 761	85	1	2	1	125
Cambridge City Hospital [1-3,142]	Cambridge Mass	E J Vogel	1,235	60	1	3	2	160
Mount Auburn Hospital	Cambridge Mass	D Hurwitz	1,252	63	1	3	1	125
Lawrence F Quigley Memorial Hospital [1,3]	Chelsea Mass	W R Ohler	938	34	2	2	1	255
Truesdale Hospital [1,3]	Fall River Mass	W Mason	1 077	44	2	2	1	150
Lynn Hospital [1,3]	Lynn Mass	C A Palladino	2 007	46	1	1	2	150
Malden Hospital [1,3]	Malden Mass	E G Thorp	1 662	61	2	3	1	125
Salem Hospital [3]	Salem Mass	S N Gardner	1 492	57	1	1	1	125
Springfield Hospital [1,3]	Springfield Mass	W C Barnes	2 139	69	3	6	3	100
Memorial Hospital [1,3]	Worcester Mass	R W Robinson	2,425	65	1	2	1	200

8. INTERNAL MEDICINE—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
St Vincent Hospital[1-3]	Worcester, Mass	J T Brosnan	2 490	67	2	5	8	175
Worcester City Hospital[3]	Worcester, Mass	E Budnitz	2 098	166	1	2	8	215
St Joseph's Mercy Hospital[1-3]	Ann Arbor, Mich	M Marshall	2,528	71	4	7	3	200
University Hospital[1, 3]	Ann Arbor, Mich	C C Sturgis	4,737	227	12	48	3	140
Leila Y Post Montgomery Hospital[1]	Battle Creek Mich	L P Shipp	244	22	1	1	8	250
Alexander Blain Hospital[1-3]	Detroit	J W Kingsley	1,783	16	1	2	2	200
Detroit Memorial Hospital[1, 3]	Detroit	J Rom	2 702	82	2	4	8	250
Evangelical Deaconess Hospital[1, 3]	Detroit	L D Stern	1,945	60	1	3	3	265
Florence Crittenton Hospital[1, 3]	Detroit	W B Cooksey	950	43	1	1	1	225
Grace Hospital[1, 3]	Detroit	D Myers	5,250	146	4	10	3	225
Harper Hospital[1, 3-149]	Detroit	R J Schneck	2,757	133	4	12	8	225
Henry Ford Hospital[1-3]	Detroit	J G Mateer	6,090	179	14	60	8	225
Jennings Memorial Hospital[1, 3]	Detroit	E K Carmichael	2,489	37	1	8	8	350
Mount Carmel Mercy Hospital[1, 3]	Detroit	H L Smith			4	10	8	225
Providence Hospital[1, 3]	Detroit	G I Hiller	2,272	127	1	3	3	250
Receiving Hospital[1-3]	Detroit	G B Myers	4,505	460	11	80	8	254
St Joseph Mercy Hospital[1-3]	Detroit	E Maire	2,215	48	1	8	3	240
Sinai Hospital[1-3]	Detroit	J E Berk	2,291	50	3	3	1	275
Woman's Hospital[1-3]	Detroit	B I Johnstone	923	26	1	2	3	250
Wayne County General Hospital and Infirmary[1-3]	Eloise, Mich	S D Jacobson	8 356	195	6	20	8	287
Hurley Hospital[1]	Flint Mich	M S Chambers	4,997	124	2	6		825
McLaren General Hospital[1]	Flint, Mich	G E Drewyer	2,000	52	1	8	8	325
Blodgett Memorial Hospital[1-3, 148, 151]	Grand Rapids, Mich	N L Avery, Jr	1,456	72	1	8	8	200
Butterworth Hospital[1]	Grand Rapids, Mich	J R Venema	1,091	71	2	6	8	225
St Mary's Hospital[1, 3, 302]	Grand Rapids, Mich	R Vander Meer	1,506	71	1	8	8	200
Highland Park General Hospital[1-3-303]	Highland Park, Mich	J K Bell	1,565	85	1	3	8	
Bronson Methodist Hospital[1]	Kalamazoo, Mich	J G Malone	2,073	60	1	3	8	260
Edward W Sparrow Hospital[1-3]	Lansing, Mich	W D Hayford	3,466	106	1	3	8	325
St Lawrence Hospital[1-3]	Lansing, Mich	F Swartz	3,332	110	2	2	8	325
Pontiac General Hospital[1-3-152]	Pontiac, Mich	D S Smith	2,949	78	1	3	8	300
St Joseph Mercy Hospital[1-3]	Pontiac, Mich	S Miller	3,323	59	2	8	3	325
Saginaw General Hospital[1-3]	Saginaw, Mich	B M Bullington	1,093		1	3	3	825
St Mary's Hospital[1, 3]	Duluth Minn	P G Boman	2,039	79	1	1	1	175
Asbury Methodist Hospital[1-3]	Minneapolis	W S Hagen	1,465	38	1	1	1	250
Minneapolis General Hospital[1, 3]	Minneapolis	T Lowry	1,607	125	4	10	3	182
Mount Sinai Hospital[1, 3]	Minneapolis	E Hill			1	1	8	182
Northwestern Hospital[1-3]	Minneapolis	D K Rizer	2 223	91	1	2	2	200
St Barnabas Hospital[1, 3]	Minneapolis	L R Scherer	2 238	79	1	1	2	175
University of Minnesota Hospitals[1-3]	Minneapolis	C J Watson	1,869	145	5	15	8	162
Mayo Foundation[1-3]	Rochester Minn		23,496	314	65	170	8	150
Ancker Hospital[1-3]	St Paul	J F Briggs	1,318	125	2	6	3	161
Charles T Miller Hospital[1]	St Paul	E T F Richards O N Hensel	3,063	60	1	3	8	185
St Joseph's Hospital[1-3]	St Paul	J M Ryan	2,254	44	1	1	1	163
St Louis County Hospital[1-3]	Clayton, Mo	R O Muether	991	102	1	3	3	275
Kansas City General Hospital No 1[1-3]	Kansas City Mo	A M Ginsberg	1 167	109	4	12	8	150
Menorah Hospital Medical Center	Kansas City, Mo	A M Ginsberg	3,839	60	3	6	3	200
Research Hospital[1-3]	Kansas City, Mo	M J Mueller	1,801	98	1	3	3	175
St Joseph Hospital[3]	Kansas City Mo	T R Jones	2,470		1	2	3	200
St Luke's Hospital[1, 3]	Kansas City, Mo	H P Boughnou	3,079	106	2	3	3	175
St Mary's Hospital[1-3]	Kansas City Mo	H M Parker	2 418	122		2	1	200
Barnes Hospital[1-3]	St Louis	W B Wood	4 941	248	12	29	3	50
De Paul Hospital[1, 3]	St Louis	L D Cassidy	2,706	76		6	3	200
Homer G Phillips Hospital[1-3]	St Louis	J R Smith	2,783	95	6	20	3	133
Jewish Hospital[1, 3-159]	St Louis	S Sherry	3 713	126	6	9	3	100
Missouri Baptist Hospital[1-3]	St Louis	W M Lonergan	2,378	71	2	4	1	175
Missouri Pacific Hospital[3]	St Louis	L B Harrison	3,033	48	4	7	8	
St Anthony's Hospital[1-3]	St Louis	R V Powell	3,013	87	1	1	1	
St John's Hospital[1-3]	St Louis	C H Neilson	2 121	65	1	3	1	150
St Louis City Hospital[1-3]	St Louis	B Bercu—W A Knight	3 727	289	12	24	3	137
St Luke's Hospital[1-3]	St Louis	P O Hagemann	1,524	96	1	3	8	200
St Mary's Group of Hospitals[1-3]	St Louis	P A Tumulty	8 890	130	4	12	3	65
Montana Deaconess Hospital[1-3]	Great Falls Mont	F R Schemm	1,432	45	2	6	3	200
Creighton Memorial St Joseph's Hospital[3]	Omaha	H N Neu	6 093	91	2	13	3	175
University of Nebraska Hospital[1]	Omaha	W B Moody	505	83	3	5	8	
Mary Hitchcock Memorial Hospital[1-3]	Hanover, N H	J W Wright	3 861	125	5	17	3	170
Atlantic City Hospital[1-3-404]	Atlantic City, N J	W B Stewart	1 472	53	1	3	8	250
Cooper Hospital[1-3]	Camden, N J	R L Sharp	1,980	185	2	3	3	200
Englewood Hospital[1-3]	Englewood, N J	G B Barlow	1,030	35	1	1	1	150
Hackensack Hospital[1-3]	Hackensack, N J	L W Black	2,780	104	1	3	2	
Medical Center—Jersey City Hospital[1-3]	Jersey City, N J	T J White	10 359	161	8	23	8	60
Monmouth Memorial Hospital[1-3]	Long Branch, N J	F Altschul	1 972	65	2	3	2	200
Mountainside Hospital[1-3, 405]	Montclair N J	H Halprin	2,565	33	1	3	3	175
Burlington County Hospital[1-3]	Mt Holly, N J	P S MacNeal	573	35	2	2	1	
Fitkin Memorial Hospital[1-3]	Neptune, N J	L F Albright	2,201	58	1	1	2	
Harrison S Martland Medical Center[1-3]	Newark, N J	J Levin	3 631	163	6	8	3	150
Newark Beth Israel Hospital[1-3]	Newark, N J	H Goldberg	2,185	106	1	3	3	75
St Michael's Hospital[1-3-406]	Newark N J	N A Antonius	2 496	85	1	6	8	125
St Peter's General Hospital[1-3]	New Brunswick, N J	J Sandella	1 003	47	1	1	1	175
Orange Memorial Hospital[1-3]	Orange, N J	D W Marquis	1 825	102	2	2	2	125
Paterson General Hospital[1-3]	Paterson, N J	J Leach	1,474	48	2	2	1	125
Mercer Hospital[1-3]	Trenton, N J	A G Markel J F Pessel	1 600	60	1	1	1	150
St Francis Hospital[1-3]	Trenton, N J	P H Corrigan	5,378	77	2	2	2	
Albany Hospital[1-3]	Albany, N Y	R T Beebe	8,085	200	3	7	3	75
Binghamton City Hospital[1-3]	Binghamton N Y	C H Berlinghof	4,263	101	2	4	3	150
th El Hospital[1-3]	Brooklyn	I Snapper	1 644	28	3	6	3	125
oklyn Hospital[1-3]	Brooklyn	E P Maynard, Jr	1 969		4	8	3	100
ey Island Hospital[1, 3]	Brooklyn	M Mensch	1,787	87	2	4	3	
Cumberland Hospital[1-3]	Brooklyn	S P Bailey	1,907	54	2	5	3	
Greenpoint Hospital[1-3]	Brooklyn	J N Cohen	1 924	85	2	4	2	98
Jewish Hospital[1-3]	Brooklyn	L Loewe	2,325	100	8	8	3	75
Jewish Sanitarium and Hosp for Chronic Dis[1-3]	Brooklyn	M G Goldner	733	48	10	22	3	175
Kings County Hospital[1-3]								
County Service	Brooklyn	A Fankhauser	5 833	213	8	17	3	98
University Service	Brooklyn	P H Long	6 170	272	6	20	3	98
Long Island College Hospital[1-3]	Brooklyn	J H Crawford	2,466	67	8	5	3	
Maimonides Hospital[1, 3]	Brooklyn	M Michael, Jr	2,435	98		9	3	75
Methodist Hospital[1-3]	Brooklyn	I L Cabot	1,891	65	2	5	3	75
Norwegian Lutheran Deaconess Home and Hosp[1-3]	Brooklyn	A. Andersen	793	61	1	2	1	100

Numerical and other references will be found on pages 414 to 416

8 INTERNAL MEDICINE—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
t Catherine s Hospital[1-3]	Brooklyn	M Murphy	1,333	74	2	4	3	
t John s Episcopal Hospital[1,3]	Brooklyn	E R Marzullo	1 765	21	1	1	1	175
Vyckoff Heights Hospital[1,3]	Brooklyn	J Indelicato	1,322	31	1	3	3	100
uffalo General Hospital[1,3,194]	Buffalo	J H Talbott	4,336	183	7	9	3	125
eaconess Hospital[1-3]	Buffalo	M S Howland Jr	2,215	61	1	3	3	250
dward J Meyer Memorial Hospital[1,3,414]	Buffalo	D K Miller	3 775	173	7	18	3	179
mergency Hospital of the Sisters of Charity	Buffalo						1	
illard Fillmore Hospital[1-3]	Buffalo	J F Painton	2 794	115	2	7	3	
isters of Charity Hospital[1,3,193]	Buffalo	H F Brown	5,593	142	2	5	3	210
lifton Springs Sanitarium and Clinic[1,3]	Clifton Springs N Y	B A Watson	2,258	40	2	4	3	100
ary Imogene Bassett Hospital[1,3]	Cooperstown N Y	J Bordley III	1 080	56	2	3	3	143
lushing Hospital and Dispensary[1,3,197]	Flushing N Y	C Cramer	1 777	57	1	3	3	200
eadowbrook Hospital[1]	Hempstead N Y	E Cavelli—A R Anderson	2 914	245	3	6	2	225
ornell University Infirmary[1-3]	Ithaca N Y	N S Moore	1,842	1	4	4	1	208
Tompkins County Memorial Hospital	Ithaca N Y	C L Sprinkle	1 436	18	2	2	1	208
ary Immaculate Hospital[1-3]	Jamaica N Y	F R Mazzola	1,510	30	1	2	1	120
ueens General Hospital[1,3]	Jamaica N Y	A A Fischl	4,814	335	7	10	2	98
harles S Wilson Memorial Hospital[1-3]	Johnson City N Y	J C Zillhardt	4 080	96	8	8	2	200
ount Vernon Hospital[3]	Mount Vernon N Y	P Reznikoff	1 611	51	1	1	2	200
ew Rochelle Hospital[1,3]	New Rochelle N Y	W C Meredith	2,049	77	1	3	3	175
ellevue Hospital Center								
Division I—Columbia University[1,3]	New York City	D W Richards	1,902	56	6	12	3	98
Division II—Cornell University[1,3]	New York City	T P Almy	1,991	57		11	3	98
Division III—N Y University College of Medicine[1,3]	New York City	W Tillett	4 654	400	4	16	3	98
Division IV—N Y University Post-Graduate Medical School[1-3,16]	New York City	C F Wilkinson Jr	1,063	66	10	32	3	98
Beth David Hospital[1,3]	New York City	H A Solomon	1 462	32	1	2	1	
Beth Israel Hospital[1,3,10]	New York City	A. M. Fishberg	1 711	68	4	8	3	120
Bird S Coler Hospital	New York City	L J Boyd	1 000	33	40	60	2	
Bronx Hospital[1,3]	New York City	E E Fischel	2 055	26	2	7	3	60
Flower and Fifth Avenue Hospitals[1,3]	New York City	L J Boyd	1,393	24	2	5	3	
Fordham Hospital[1,3]	New York City	B Pasquarelli	4 078	158	7	9	2	98
Francis Delafield Hospital[1,3]	New York City	R Loeb	305	90	3	7	3	98
French Hospital[1,3]	New York City	H. J McNelle	751	13	1	2	2	83
Goldwater Memorial Hospital[1,3] University Service	New York City	B Jablons	1,194	52		21	3	99
Harlem Hospital[1-3]	New York City	A Altschul	8,985		4	10	3	98
Hospital for Joint Diseases[1,3]	New York City	M Dinnerstein	683	19	1	2	2	70
Hospital for Special Surgery[1-3]	New York City	R H Freyberg	443	5	2	2	1	160
Jewish Memorial Hospital[1,3]	New York City	B M Hershfield	1 405	51	1	1	1	150
Knickerbocker Hospital[1,3]	New York City	J R Murphy	2,667		2	4	3	110
Lebanon Hospital[1-3]	New York City	D Greenberg—H Frosch	1 422	56	1	1	1	100
Lenox Hill Hospital[1,3]	New York City	C D Chapelle E A. Lawrence	1,670	88	4	7	2	180
Lincoln Hospital[1,3]	New York City	J Geiger	3,311	87	4	12	1	65
Memorial Center for Cancer and Allied Diseases[1-3]	New York City	R W Rawson L F Craver	1,592	492	12	24	3	98
Metropolitan Hospital[1,3]	New York City	L J Boyd	8,916	137	8	10	1	98
Montefiore Hospital[1,3,11]	New York City	L Leiter	2,393	120	16	26	3	75
Morrisania City Hospital[1-3]	New York City	S Biloon	3,943	140	8	13	2	
Mount Sinai Hospital[1,3]	New York City	A. B Gutman	5,137	190	22	32	3	50
New York City Hospital[1,3]	New York City	S Fiske—H E Marks	8,361	69	4	8	3	98
New York Hospital[1,3]	New York City	D P Barr	2 636	186	11	22	3	84
New York Infirmary[1,3]	New York City	M. E Manter	193	8	1	1	1	150
New York Polyclinic Medical School and Hospital[1-3]	New York City	J P Croce	1,695	29	1	3	3	100
New York University Bellevue Medical Center University Hospital[1,3]	New York City	C F Wilkinson Jr	1,991	48	4	5	3	85
Presbyterian Hospital[1,3]	New York City	R F Loeb	7 768	130	12	21	3	
Roosevelt Hospital[1,3]	New York City	J M. Freston A. J Antenucci	2,526	101	6	12	3	116
St Barnabas Hospital for Chronic Diseases[1,3]	New York City	A. J Patek Jr	719	30	1	2	1	200
St. Clare s Hospital[1-3]	New York City	J P Croce	1 718	89	1	3	3	125
St Francis Hospital[1,3]	New York City	E P Flood	1 669	50	2	3	2	125
St Luke s Hospital[1,3]	New York City	G J Coffin	3,277	188	6	18	3	75
St Vincent s Hospital[1,3,224]	New York City	O La Rotonda	3,293	170	6	13	3	50
Sydenham Hospital[1,3]	New York City	E Applebaum	805	17	1	3	1	98
United Hospital[1,3]	Port Chester N Y	N H. Schwartz	1,570	45	1	1	1	200
Genesee Hospital[1,3]	Rochester N Y	C Boller	1 400	109	2	5	3	75
Highland Hospital[1,3]	Rochester N Y	J R Williams Jr	1,870	80	2	5	3	100
Rochester General Hospital[1,3]	Rochester N Y	L Pulsifer	2 079	159	3	9	3	100
St Mary s Hospital[1,3]	Rochester N Y	L F La Palm	4,180	148	2	6	3	
Strong Memorial-Rochester Municipal Hospitals[1,3]	Rochester N Y	W S McCann	4,544	325		15	3	42
Ellis Hospital[1-3]	Schenectady N Y	H Reynolds	3,575	89	2	4	3	150
St Vincent s Hospital[1,3]	Staten Island N Y	H. A. Cochrane	1,821	64	1	1	1	150
Staten Island Hospital[1-3]	Staten Island N Y	E H. Robitzek	1,688	72	1	2	1	200
State University of New York Medical Center[1]	Syracuse N Y	R H Lyons			12	37	3	191
Grasslands Hospital[1,3]	Valhalla N Y	R R Heffner	859	103	1	5	3	150
White Plains Hospital[1,3]	White Plains N Y	E W Weber	1,518	44	1	4	3	125
North Carolina Memorial Hospital[1]	Chapel Hill N C	C H. Burnett	698	25	6	18	3	145
Charlotte Memorial Hospital[1-3]	Charlotte N C	J M. Alexander	2,074	52	1	2	2	200
Duke Hospital[1,3,229]	Durham N C	E A Stead	2,837	55	14	34	2	42
Watts Hospital[1,3]	Durham N C	I H Manning	2,665		2	5	3	100
Rex Hospital[1]	Raleigh N C	E W Brian	1,514	30	1	1	1	250
St Agnes Hospital[1]	Raleigh N C	V S Caviness	808	26	1	1	1	250
James Walker Memorial Hospital[1,3]	Wilmington N C	R B Rodman	2,924	83	1	1	1	150
City Memorial Hospital[1,3]	Winston Salem N C	C R. Welfare	2,992	54	2	4	3	
Kate Bitting Reynolds Memorial Hospital[1]	Winston Salem N C	R L Smith	1,977	57	1	2	2	200
North Carolina Baptist Hospital[1,3]	Winston Salem N C	E H Yount Jr	2,182	58	4	10	3	125
Bismarck Hospital[3]	Bismarck N D	C H Peters	1 406	23	1	1	1	270
St Luke s Hospital	Fargo N D	A C Fortney	1,208	50	2	2	1	300
City Hospital[1,3]	Akron Ohio	R Wilson	4 767	199	3	6	3	235
Peoples Hospital[1,3]	Akron Ohio	J P Sauvageot	1,354	49	2	5	3	250
St Thomas Hospital[1,3]	Akron Ohio	R B Smith	2,563	90	2	5	3	250
Aultman Hospital[1-3]	Canton Ohio	C V Smith	3 016	122	3	4	3	225
Mercy Hospital[1,3]	Canton Ohio	L B Hamilton	3 776	65	1	3	3	270
Bethesda Hospital[1,3]	Cincinnati	J N Ganin	1,822	80	1	1	1	270
Christ Hospital[1]	Cincinnati	I H. Schroth	1,255	63	2	4	3	270
Cincinnati General Hospital[1,3,13,433]	Cincinnati	M. A. Blankenhorn	2,140	233	13	40	3	
Deaconess Hospital[1,3]	Cincinnati	C Vilter—R Woolford	3 416	47	2	2	1	175

Numerical and other references will be found on pages 414 to 416

8. INTERNAL MEDICINE—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Good Samaritan Hospital[1-3]	Cincinnati	J E Vollmer			2	6	3	155
Jewish Hospital[1-3, 230]	Cincinnati	H B Weiss	1,957	140	5	10	8	145
St Mary's Hospital[1, 3]	Cincinnati	R J Anzinger	93		1	8	8	250
City Hospital[1-3]	Cleveland	R W Scott	2,136	176	5	14	8	140
Cleveland Clinic Hospital[1, 3]	Cleveland	A C Ernstene	1 647	42	14	89	3	175
Fairview Park Hospital[1-3]	Cleveland	H E Christman	1 828	36	2	2	1	120
Lutheran Hospital[1, 3]	Cleveland	M August	1,674	48	1	4	8	175
Mount Sinai Hospital[1, 3, 43]	Cleveland	M L Siegel	2 845	138	5	9	8	216
St Alexis Hospital[1, 3]	Cleveland	R R Bartunek	8,752	85	8	6	8	250
St John's Hospital[1, 3]	Cleveland	W J Fornes	1,465	43	2	4	8	170
St Luke's Hospital[1-3, 43]	Cleveland	A D Nichol	8,538	130	3	7	3	120
St Vincent Charity Hospital[1, 3]	Cleveland	M I Sparks	3,810	49	8	6	3	210
University Hospitals[1, 3, 130]	Cleveland	J T Wearn	8 947	225	13	23	8	125
Mount Carmel Hospital[1]	Columbus, Ohio	P T Knies	2,555	89	1	3	3	250
Ohio State University Hospitals								
St Francis Hospital	Columbus Ohio	B Weyman	1,125	99			3	
University Hospital[1-3, 48]	Columbus, Ohio	B K Wiseman	4 390	203	5	21	3	150
White Cross Hospital[1]	Columbus, Ohio	D J Vincent	1,957	17	1	3	8	325
Miami Valley Hospital[1-3]	Dayton, Ohio	H R Cammerer	2,011	341	1	3	8	165
Huron Road Hospital[1, 3]	East Cleveland	E A Marshall	2,210	69	2	4	2	210
Marymount Hospital[1-3]	Garfield Heights, Ohio	A A Hill	1 302	32	2	2	1	300
Lakewood Hospital[1, 3]	Lakewood, Ohio	J T Ledman	1,876	76	8	7	8	200
St Rita's Hospital[1, 3]	Lima, Ohio	F G Maurer	868	25	1	3	3	225
Maumee Valley Hospital[1, 3]	Toledo, Ohio	A A Applebaum	1,263	77	3	7	3	
Mercy Hospital[1, 3]	Toledo, Ohio	G W Bascom	1,045	25	1	3	1	250
St Vincent's Hospital[1-3]	Toledo, Ohio	M A Schnitker	3 601	83	2	4	8	225
Toledo Hospital[1, 3]	Toledo, Ohio	C S Mundy	1 926	117	1	3	3	200
St Elizabeth's Hospital[1-3]	Youngstown, Ohio	M W Neidus	2 359	76	2	3	2	300
Youngstown Hospital[1, 3-19]	Youngstown, Ohio	W H Bunn	7,385	219	2	6	8	125
St Anthony Hospital	Oklahoma City	P M McNeill	2,519	64	1	2	2	150
University Hospitals[1-3-21, -216]	Oklahoma City	S Wolf	968	74	4	10	8	95
Wesley Hospital[1-216]	Oklahoma City	W W Rucks, Jr	1,230	49	1	8	3	250
Hillcrest Medical Center[1]	Tulsa, Okla	E M Lusk	3,232	41	1	2	2	
St John's Hospital[1-3]	Tulsa, Okla	F R Park	3 035	60	2	4	3	
Emanuel Hospital[1, 3]	Portland, Ore	G M Robins	2 621	96	1	8	3	
Good Samaritan Hospital[1, 3]	Portland, Ore	H Kammer	5 090	114	2	6	1	175
Providence Hospital[1-3]	Portland, Ore	G Long	3 942	151	1	8	3	175
St Vincent's Hospital[1-3]	Portland, Ore	A L Rogers	4,076	119	2	6	3	175
University of Oregon Medical School Hospitals and Clinics[1, 3]	Portnald, Ore	H P Lewis	2,251	234	2	6	3	85
Abington Memorial Hospital[1-3]	Abington, Pa	J T Beardwood, Jr	1,705	69	1	2	2	100
Allentown Hospital[1-3]	Allentown, Pa	C H Kelchner	2 657	142	1	2	8	225
Sacred Heart Hospital[1-3]	Allentown, Pa	A W Dubbs	2,810	69	1	2	2	225
St Luke's Hospital[1, 3]	Bethlehem, Pa	L I Fisher	2 238	125	2	2	8	275
Bryn Mawr Hospital[1-3]	Bryn Mawr, Pa	W W Dyer	2,020	90	8	6	1	100
George F Geisinger Memorial Hospital[1-3]	Danville Pa	W J Stainsby	2 041	51		8	2	125
Easton Hospital[1-3]	Easton Pa	J Kincov	2,206	62	2	2	2	250
Hamot Hospital[1, 3]	Erie Pa	J B Tredway	2 748	78	1	1	1	200
Westmoreland Hospital	Greensburg, Pa	E Highberger Jr	1 895	43	1	1	2	300
Harrisburg Hospital[1, 3]	Harrisburg, Pa	J A Daugherty	4 208	119	1	3	3	250
Harrisburg Polyclinic Hospital[1]	Harrisburg, Pa	A W Cowley	2,315	84	2	4	2	250
Albert Einstein Medical Center								
Northern Division[1-3]	Philadelphia	H L Goldburgh	2 777	97	2	6	8	200
Southern Division[1-3]	Philadelphia	T H Mendell	1,759	81	4	4	8	160
		A I Rubenstone	1,910	101	2	6	3	100
Episcopal Hospital[1-3]	Philadelphia	S R Vogel—L A Soloff	770	44	1	1	1	
Frankford Hospital[1]	Philadelphia	G E Mark	2 267	121	1	3	3	150
Germantown Dispensary and Hospital[1-3]	Philadelphia	R W Mays	1 193	25	2	4	2	
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	H L Bockus	2 846	84	4	10	3	
Hahnemann Medical College and Hospital[1-3]	Philadelphia	C L Brown	8,671	160	12	39	3	
Hospital of the University of Pennsylvania[1-3]	Philadelphia	F C Wood						
Hospital of the Woman's Medical College of Pennsylvania[1-3-14]			1 140	28	1	5	3	60
	Philadelphia	W G Leaman	3 171	125	11	22	2	
Jefferson Medical College Hospital[1-3]	Philadelphia	J E Deitrick						
Lankenau Hospital[1-3]	Philadelphia	E L Bortz	1 871	60	2	4	2	100
		F L Hartmann	1 032	27	2	2	1	200
Methodist Episcopal Hospital[1-3]	Philadelphia	H Robertson	2 322	138	7	7	2	20
Pennsylvania Hospital[1-3]	Philadelphia	G G Duncan			6	18	3	113
Philadelphia General Hospital[1-3-9]	Philadelphia	D N Kremer	2 195	72	1	3	3	100
Presbyterian Hospital[1-3-258]	Philadelphia	J W Hundley	3 075	104	4	12	8	
Temple University Hospital[1-3]	Philadelphia	R A Kern	1,020	20	1	2	2	176
Woman's Hospital[1-3]	Philadelphia	I Balph	1,765	30	2	2	2	
Allegheny General Hospital[1-3]	Pittsburgh	M H McCaffrey	1,408	21	1	3	3	125
Elizabeth Steel Magee Hospital[1-3]	Pittsburgh	L A Gregg	1,122	26	1	8	3	
Mercy Hospital[1-3]	Pittsburgh	W W G Maclachlan	3 678	102	3	7	8	100
Montefiore Hospital[1-3]	Pittsburgh	Y D Koskoff	1 431	40	1	1	1	200
Pittsburgh Hospital	Pittsburgh	A V Morgan	1 923	52	3	9	3	125
Presbyterian Hospital[1-3]	Pittsburgh	A B Colwell	2,207	82	1	8	3	150
St Francis Hospital[1-3]	Pittsburgh	A P D Zmura	683	27	1	1	1	175
St Margaret Memorial Hospital[1]	Pittsburgh	C J Bowen						
South Side Hospital[1-3]	Pittsburgh	H Klinzing	1,879	58	1	2	2	250
		G R Williamson	8,584	97	2	6	3	225
Western Pennsylvania Hospital[1-3]	Pittsburgh	G Booth	1,905	126	1	2	2	225
Reading Hospital[1-3]	Reading, Pa	J R Spannuth	1 400	65	1	1	1	250
St Joseph's Hospital[1-3]	Reading, Pa	R M Mulligan	4 147	61	3	7	3	150
Robert Packer Hospital[1-3]	Sayre, Pa	S Conklin	1 418	71	1	1	2	216
Scranton State Hospital[1-3]	Scranton, Pa	M Goldstein	8 156	72	1	1	1	225
Wilkes Barre General Hospital[1]	Wilkes Barre, Pa	G E Baker	2 376	105	1	1	1	250
York Hospital[3]	York, Pa	H B Thomas	8,211	209	10	14	3	00
Rhode Island Hospital[1-3]	Providence, R I	M N Fulton	2 672	66	4	8	3	83
Roper Hospital[1-3]	Charleston, S C	V Moseley	4 517	59	1	3	3	250
Columbia Hospital[1-3]	Columbia, S C	B N Miller	8,916	79	4	10	3	
Baroness Erlanger Hospital[1-3]	Chattanooga, Tenn	E W Patton	1,801	30	3	3	1	250
Memorial Hospital[1-3]	Chattanooga, Tenn	W B MacGuire, Jr	1,632	62	1	1	1	133
Knoxville General Hospital	Knoxville, Tenn	R B Wood	5 344	95	1	3	3	110
Baptist Memorial Hospital[1-3]	Memphis, Tenn	J Young	2 669	852	4	10	3	2[illegible]
John Gaston Hospital[1-3]	Memphis, Tenn	I F Tullis	3,478	58	1	3	3	
St Joseph Hospital[1-3]	Memphis, Tenn	S Blackwell						
George W Hubbard Hospital of Meharry Medical College[1-3]	Nashville, Tenn	F T Billings, Jr	1,008	45	2	6	3	125

Numerical and other references will be found on pages 414 to 416

8 INTERNAL MEDICINE—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
Midstate Baptist Hospital	Nashville Tenn						1	
Nashville General Hospital[1]	Nashville Tenn	R A Kampmeier	1 617	50	1	3	8	
St. Thomas Hospital[1,3]	Nashville Tenn	A B Scoville	1,815	47	3	6	2	200
Vanderbilt University Hospital[1,3]	Nashville Tenn	H J Morgan	3 142	97	2	9	3	50
Oak Ridge Institute of Nuclear Studies[1]	Oak Ridge Tenn	G A Andrews	312	27		2	1	167
Baylor University Hospital[1,3]	Dallas Texas	H Winans Sr	4 733	83	2	5	3	105
Methodist Hospital[1,3]	Dallas Texas	T S Barnes	2,944	35	2	4	3	125
Parkland Hospital[1,3]	Dallas Texas	D W Seldin	902	90	3	8	8	125
St Paul's Hospital[1,3]	Dallas Texas	T M. Kirksey	3,271	82	3	6	3	125
Harris Hospital[1,3]	Fort Worth Texas	D Neighbors	2,907	71	1	8	2	300
University of Texas Medical Branch Hospitals[1,3]	Galveston Texas	C T Stone Sr	2,563	156	8	24	8	150
Hermann Hospital[1,3,274,6]	Houston Texas	E A Wilkerson	5 493	119	2	6	8	100
Jefferson Davis Hospital[1]	Houston Texas	J A Greene	1,953	114	1	9	8	50
Methodist Hospital[1,3]	Houston Texas	H W Cummings	2 425	46	8	6	3	100
Southern Pacific Hospital[3]	Houston Texas	M. D Levy Sr	758	7	1	2	2	
University of Texas M D Anderson Hospital for Cancer Research[1,3]	Houston Texas	C D Howe	2,279	38		8	1	
Robert B Green Memorial Hospital[1,3]	San Antonio Texas	W W Bondurant Jr			1	2	3	125
Santa Rosa Hospital[3]	San Antonio Texas	M M. Minter	2,289	91	1	1	1	150
Scott and White Memorial Hospitals[1,3,47]	Temple Texas	O B Gober	2,552	34	4	12	1	300 ✓
Thomas D Dee Memorial Hospital[1,3]	Ogden Utah	W P Daines	2 136	59	2	2	1	250
Dr W H Groves Latter Day Saints Hospital[1,3]	Salt Lake City	G Curtis	2,838	102	1	3	3	200
Holy Cross Hospital[1,3]	Salt Lake City	L W MacFarlane	1,238	81	1	1	1	175
Salt Lake County General Hospital[1-3,4]	Salt Lake City	M M Wintrobe	894	105	4	21	3	125
Bishop DeGoesbriand Hospital[1,3]	Burlington Vt	C M. Terrien	1,807	30	1	2	2	100
Mary Fletcher Hospital[1-3,50]	Burlington Vt	E L Amidon	1 602	51	3	6	2	110
Alexandria Hospital[1,3]	Alexandria Va	B C Jones Jr			1	3	3	225
University of Virginia Hospital[1,3]	Charlottesville Va	W Parson	2 724	116	9	24	3	50
Chesapeake and Ohio Hospital	Clifton Forge Va	A D Williams	2,590	28	1	4	2	190
Riverside Hospital	Newport News Va	T N Hunnicutt	1,250	30	2	3	1	250
De Paul Hospital[1,3]	Norfolk Va	J Lea	2,901	60	2	4	3	200
Norfolk General Hospital[1,3]	Norfolk Va	M R Whitehill	2,448	105	4	7	3	150
Johnston Willis Hospital[1,3]	Richmond Va	J M. Hutchison	962	26	1	3	1	250
Medical College of Virginia—Hospital Division[1,3]	Richmond Va	W B Porter	4 000	142	10	19	3	50
Lewis Gale Hospital[3]	Roanoke Va	R H Jones Jr	2,167	83	1	3	3	300 ✓
Doctors Hospital[1,3]	Seattle	J D Collins	2,115	82	1	1	1	125
King County Hospital—Unit No 1 (Harborview)[1,294]	Seattle	R H Williams	5,845	398	6	12	3	110
Providence Hospital[1]	Seattle	R Foster	2,559	82	4	6	2	200
Swedish Hospital[1,3]	Seattle	K Skubi	2,314	81	2	3	1	
Virginia Mason Hospital[1,3]	Seattle	R L King	3,277	74	8	6	8	100
St Luke's Hospital[1,3]	Spokane Wash	E M Welty	2,349	41	1	1	1	150
Charleston General Hospital[1,3]	Charleston W Va	W A Thornhill Jr	2 435	40	2	5	3	175
Memorial Hospital[1,3]	Charleston W Va	P A Tuckwiller	1,597	58	1	3	3	
Chesapeake and Ohio Hospital[1,3]	Huntington W Va	W E. Bray Jr	2,105	28	2	4	1	150
St Mary's Hospital[1,3]	Huntington W Va	J E Stone	2,613	71	1	1	1	150
Ohio Valley General Hospital[1,3]	Wheeling W Va	D A MacGregor	1,826	59	1	3	3	300 ✓
La Crosse Lutheran Hospital[1,3]	La Crosse Wis	T E Gundersen	2,145	51	1	1	2	
Madison General Hospital[1,3,491]	La Crosse Wis	A B Weinstein	1 469	67	2	2	1	150
St Mary's Hospital[1,3,492]	Madison Wis	R X. Farrell	1 715	54	1	3	3	200
University Hospitals								
State of Wisconsin General Hospital[1]	Madison Wis	O O Meyer	4,253	116	6	18	3	
St Joseph's Hospital	Marshfield Wis	K. H Doege	1,946	51	1	2	3	850 ✓
Columbia Hospital[1-8,295]	Milwaukee	E W Mason	1,519	66	1	8	8	195 ✓
Milwaukee County Hospital[1,3]	Milwaukee	J Shafken	9,533	831	7	21	3	205
Milwaukee Hospital[1,3,296]	Milwaukee	S M Evans	2,880	71	1	3	3	150 ✓
Mount Sinai Hospital[1,3]	Milwaukee	B A Frisch	1,362	19	1	3	3	300 ✓
St Joseph's Hospital[1,3]	Milwaukee	S Rosenthal	2,570	110	2	6	8	200 ✓
St Luke's Hospital[1,3]	Milwaukee	F J Millen	2,756	83	8	8	1	275 ✓
Gorgas Hospital[1,3]	Ancon C Z	M C Davenport	2,657	79	2	6		
Queen's Hospital[1,3]	Honolulu T H	H L Arnold Sr	2,724	142	2	5	3	125
Bayamon District Hospital[1,3]	Bayamon P R	E Martinez	1,121	58	1	2	8	255
San Juan City Hospital[1,3]	San Juan P R	R S Diaz Rivera	1 057	59	2	6		150

9 MALIGNANT DISEASES

The following services have been approved for one year of training by the Council on Medical Education and Hospitals

Hospitals 12 Assistant Residencies and Residencies 34

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
VETERANS ADMINISTRATION							
Veterans Admin Hospital[1]	Hines Ill	T H Clarke	1,074	114	1	1	

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
City of Hope Hospital[1,3]	Duarte Calif	H R Bierman	410	51	5	5	150
Presbyterian Hospital-Olmsted Memorial[1,3]	Los Angeles	H M. Kersten	506	27		1	125
Collis P and Howard Huntington Memorial Hosp[1,3]	Pasadena Calif.	L G Craig	608	24	1	2	240
Michael Reese Hospital[1,3]	Chicago	E Uhlmann	910	72	2	2	
Westfield State Sanatorium[1,3]	Westfield Mass	F S Hopkins	850	41	3	3	400
Ellis Fischel State Cancer Hospital[1,3]	Columbia Mo	H Schwarz II	1 441				
Metropolitan Hospital	New York City						
Montefiore Hospital[1,3]	New York City	D Laszlo	724	109	5	6	75
American Oncologic Hospital[1,3]	Philadelphia	J W Bransfield	1,100	17	4	4	250
Jeanes Hospital[1,3]	Philadelphia	R W Mays	2 735	23	4	7	150
Univ of Texas M D Anderson Hospital for Cancer Research[1,3]	Houston Texas	E C White	2,279	57	3	3	

Numerical and other references will be found on pages 414 to 416

10. NEUROLOGICAL SURGERY

The following services have been approved by the Council and the American Board of Neurological Surgery, through the Residency Review Committee for Neurological Surgery, as offering acceptable training in the specialty

Hospitals, 77, Assistant Residencies and Residencies, 265

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Length of Approved Program (Years)	Beginning Stipend (Month)
FEDERAL								
UNITED STATES ARMY								
Army Medical Center [1-3-66-67]	Washington, D C	J Martin	765	16	3	6	3	
VETERANS ADMINISTRATION								
Veterans Admin Research Hospital	Chicago	L Davis	(See Northwestern University Medical Center)					
Veterans Admin Hospital [1-3]	Boston (Jamaica Plain), Mass	J H Drew	388	30	1	2	2	
Veterans Admin Hospital [3]	New York City (Bronx)	J E Scarff	219	8	1	5	3	
Veterans Admin Hospital [1-3-442 443]	*Cleveland*	(See Western Reserve University Hospitals)						
Veterans Admin Hospital [1-3]	Memphis, Tenn	O D Scheibert	675	21	1	2	1	
Veterans Admin Hospital [1]	White River Jct, Vt	(See Dartmouth Medical School Affiliated Hospitals)						
Veterans Admin Hospital [1-3]	Richmond, Va	J L Ulmer	339	9	1	3	1	
NONFEDERAL								
Jefferson Hillman Hospital [1-3 312]	Birmingham Ala	J G Galbraith	697	19		1	3	
Los Angeles County General Hospital [1]	Los Angeles	C Rand	2,607	173	1	4	3	200
White Memorial Hospital [1 3-379]	Los Angeles	P J Vogel	333	19	1	2	2	
Collis P and Howard Huntington Memorial Hosp [3]	Pasadena Calif	C N Shelden—R Pudenz	525	15	1	3	3	
Franklin Hospital [1-3]	San Francisco	H A Brown	(See University of California Hospital)					
University of California Hospital [1-3 40 498]	San Francisco	E B Boldrey	572	18		3	3	87
Hartford Hospital [1 3]	Hartford, Conn	W B Scoville	1,197	7		4	3	75
St Francis Hospital [1-3]	*Hartford Conn*	*R C Buckley*	913	12	1	1	1	100
Grace New Haven Community Hospital [1-3]	New Haven, Conn	W J German	545	27		2	3	50
Emory University Hospital [1 3]	*Emory University Ga*	*E F Fincher*	292	1		1	3	190
Mercy Hospital	Chicago	H C Voris	251	16		1	2	100
Northwestern University Medical Center		L Davis	506		1	3	3	
Chicago Wesley Memorial Hospital [1 3]	Chicago	P C Bucy	54	3	1	2		50
Passavant Memorial Hospital [1 3]	Chicago	L Davis	166					60
Veterans Admin Research Hospital	Chicago	L Davis						
Evanston Hospital	Evanston, Ill	J A Tarkington						
St Luke's Hospital [1-3]	Chicago	E Oldberg	(See University of Illinois Neuropsychiatric Inst)					
University of Chicago Clinics [1-3]	Chicago	T B Rasmussen	250	19	1	3	3	175
University of Illinois Neuropsychiatric Institute [1-499]	Chicago	E Oldberg	1,047	63	2	7	3	110
Indiana University Medical Center [1-103]	Indianapolis	J Russell	314	16	1	3	3	165
University Hospitals [2-3]	Iowa City	R Meyers			1	4	3	75
University of Louisville Hospitals [1-3 307]	Louisville Ky	R G Spurling	168	7	1	3	3	
Ochsner Foundation Hospital [1-94]	New Orleans	*D H Echols*	240	6	1	3	3	200
Johns Hopkins Hospital [1-3]	Baltimore	A E Walker	808	19	0	3	3	20
University Hospital [1-3-110-123]	*Baltimore*	J G Arnold, Jr	543	22	2	6	3	60
Lahey Clinic [1-3]	*Boston*	G Horrax	1,800	30	4	8	1	150
Massachusetts General Hospital [1 3]	Boston	J C White	755		1	3	3	
New England Center Hospital [1-3 378]	Boston	B Selverstone	282	8	1	3	1	83
University Hospital [1-3]	Ann Arbor Mich	E Kahn	797	52	2	6	3	170
Grace Hospital [1-3-147]	Detroit	E S Gurdjian	780	22	1	3	3	225
Henry Ford Hospital [1-3]	*Detroit*	*R S Knighton*	428	18	2	5	3	225
University of Minnesota Hospitals [1-3-497]	Minneapolis	W T Peyton	398	28	1	6	3	162
Mayo Foundation [1-3]	Rochester, Minn	W McK Craig	3,294	66	10	28	3	150
Barnes Hospital [2-3]	St Louis	H G Schwartz	501	41		3	3	50
Dartmouth Medical School Affiliated Hospitals			641	26	1	3	3	220
Mary Hitchcock Memorial Hospital [1-3]	*Hanover, N H*	*R G Fischer*						
Veterans Administration Hospital [1]	White River Jct, Vt	R G Fischer						
Albany Hospital [1-3]	Albany, N Y	*E H Campbell*	1,066	52	2	3	3	75
Kings County Hospital [1-3-180] University Service	Brooklyn	E J Browder	8,448	146	3	6	3	93
Buffalo General Hospital [1-3-186]	*Buffalo*	W B Hamby	514	25	1	4	3	125
Bellevue Hospital Center Division IV—New York University Post Graduate Medical School	New York City	T I Hoen	603	37	2	8	3	65
Mount Sinai Hospital [1-3-436]	New York City	*L M Davidoff*	337	10		2	3	50
New York Hospital [1-3]	*New York City*	B S Ray	256		1	2	3	34
Presbyterian *Hospital (Neurological Institute)* [1-3]	*New York City*	*J L Pool*	752	75	2	9	3	
St Vincent's Hospital [1-3]	New York City	C G *de Gutierrez Mahoney*	748	10	1	3	3	50
Duke Hospital [1-3-229]	*Durham N C*	B Woodhall	1,159	8	1	7	3	67
North Carolina Baptist Hospital [1-3]	Winston-Salem, N C	E Alexander Jr	482	25	1	3	3	125
University of Cincinnati Affiliated Hospitals							3	
Cincinnati General *Hospital* [1-3]	Cincinnati	J P Evans	302	40	1	4		
Christ Hospital [1]	Cincinnati	F H Mayfield	277	7	1	1		200
Good Samaritan Hospital [1-3]	Cincinnati	F H Mayfield	261	8		1		215
Cleveland Clinic Hospital [1-3]	Cleveland	W J Gardner	807	22	2	6	3	175
Western Reserve University Hospitals							3	
City Hospital [1-3]	Cleveland	C W Elkins			0	1		
University Hospital [1-3]	Cleveland	F E *Nulsen*		4		3		125
Veterans Admin Hospital	Cleveland	C W Elkins	230	9	1	1		
White Cross *Hospital* [1]	Columbus Ohio	H E *Le Fever*	914	27	1	3	1	325
University Hospitals [1-3-215]	Oklahoma City	H *Wilkins*	155	14		2	2	95
University of *Oregon Medical School Hospitals and Clinics* [1-3-210]	Portland Ore	J Raaf	781	27	1	3	3	85
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	R A Groff	627	33	1	2	3	100
Hospital of the *University of Pennsylvania* [1-3]	Philadelphia	F Grant	441	24	2	6	3	50
Jefferson Medical College Hospital [1-3]	Philadelphia	R *Jaeger*	348	25	1	3	3	
Temple University Hospital [1-3]	Philadelphia	M Scott	752	24	1	3	3	
Mercy Hospital [1-3]	Pittsburgh	F H Bragdon	665	14	1	3	3	175
Pittsburgh Medical Center [1]	*Pittsburgh*	C G de Gutierrez Mahoney	748	10	1	3	3	50
Children's Hospital	Pittsburgh							
Presbyterian Hospital	Pittsburgh							
St Francis Hospital	Pittsburgh							
Robert *Packer Hospital* [1-3]	Sayre, Pa	A King	410	22	1	1	1	150
Baptist Memorial Hospital [1-3-204]	Memphis, Tenn	R E Semmes	1,713	19	1	3	3	100
Vanderbilt University Hospital [1-3]	Nashville, Tenn	W F Meacham	630	15	1	3	3	50
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	S R Snodgrass	504	25	1	3	3	150
Methodist Hospital [1-3-480]	Houston Texas	J Greenwood, Jr	814	18	1	4	3	100
University of Virginia Hospital [1-3]	Charlottesville, Va	W G Crutchfield	686	7	1	4	3	50
Medical College of Virginia—Hospital Division [1-3]	Richmond, Va	J M Meredith	956	34	1	4	3	50
University of Washington Affiliated Hospitals [1-494]	Seattle	A A Ward, *Jr*	410	44		1	3	120
King County Hospital, Unit No 1 (Harborview)	Seattle							
University Hospitals								
State of *Wisconsin General Hospital* [1]	Madison, Wis	T C Erickson	283	30	1	3	3	

Numerical and other references will be found on pages 414 to 416

11 NEUROLOGY

The following services have been approved by the Council and the American Board of Psychiatry and Neurology through the Residency Review Committee for Psychiatry and Neurology, as offering acceptable training in the specialty

Hospitals 83 Assistant Residencies and Residencies, 274

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered	Total Residencies Offered	Length of Approved Program (Years)	Beginning Stipend (Month)
FEDERAL								
UNITED STATES ARMY								
Letterman Army Hospital[1, 2, 66]	San Francisco	J W Kemble	224	1			3	
Fitzsimons Army Hospital[1-66]	Denver	R E Clausen	430				3	
Army Medical Center[1, 2, 66-6]	Washington D C	J F Hammill	377		1	4	3	
UNITED STATES NAVY								
U S Naval Hospital[1, 2, 351]	Bethesda Md	T W McDaniel	363	4			1	
U S Naval Hospital[1, 2]	Philadelphia	J F McMullin	318	3			1	
DEPARTMENT OF HEALTH EDUCATION AND WELFARE								
Freedmen s Hospital[1, 2]	Washington D C	E Y Williams	193		1	2	2	
St. Elizabeth s Hospital	Washington D C	H H. Ammerman	73	4	1	1	1	
VETERANS ADMINISTRATION								
Veterans Admin Hospital[1, 2]	Long Beach Calif	L G Lloyd	489	24	1	3	3	
Veterans Admin Hospital[1, 2]	Los Angeles	R N Baker	839	19	1	1	3	
Veterans Admin. Hospital[1, 42]	San Francisco	H W Newman	207	3	1	3	2	
Veterans Admin Hospital[1, 2, 49]	Denver	L L Woodfin	556	1	2	6	2	
Veterans Admin Hospital[1-2]	Washington D C	H. M Corson	290	6		2	3	
Veterans Admin Hospital[1]	Hines Ill	L J Pollock	1,301	54	3	4	3	
Veterans Admin Hospital[1-2]	Topeka Kan	M. R Shaver	405	15	1	2	2	
Veterans Admin Hospital[1, 2, 12]	Louisville Ky	E Roseman	172	14	1	2	2	
Veterans Admin Hospital[1-2]	Boston (Jamaica Plain)	F A Quadfasel	963		2	6	3	
Veterans Admin Hospital[1, 2, 305]	Minneapolis	R C Gray	630	17	2	4	3	
Veterans Admin Hospital[402]	Kansas City Mo	W A Stephenson	254	18	1	2	1	
Veterans Admin Hospital[1, 2]	Brooklyn	M E Margulies	307	15	2	4	3	
Veterans Admin. Hospital[2, 4-3]	New York City (Bronx)	H L Flowers	610	33	1	4	3	200
Veterans Admin Hospital[1, 3, 442]	Cleveland	C T Randt	327	15	1	1	1	
Veterans Admin Hospital[1-2]	Coatesville Pa				5	5	3	
Veterans Admin Hospital[1, 2]	Houston Texas	W S Fields	525	25	2	6	2	
Veterans Admin. Hospital	Salt Lake City Utah						2	
Veterans Admin. Hospital[1-2]	Richmond	J B Funkhouser	257	6	3	3	3	
NONFEDERAL								
Los Angeles County General Hospital[1]	Los Angeles	J M. Nielsen	3,194	223	3	3	3	200
White Memorial Hospital[1, 2, 3, 9]	Los Angeles	L B Mann Jr	82	3	1	3	3	
University of California Hospital[1, 2]	San Francisco	R B Aird	348	6		3	2	87
University of Colorado Medical Center								
Colorado General Hospital[1, 2, 22]	Denver	J W Stevens	128	18	3	6	3	150
Colorado Psychopathic Hospital	Denver							
Denver General Hospital[1, 2]	Denver	L E Daniels	121	20			3	
District of Columbia General Hospital[1-2]	Washington D C	W Freeman—F M Forster	585	7	1	3	2	100
Georgetown University Hospital[1, 2]	Washington D C	F M. Forster	175		4	9	2	
George Washington University Hospital[1, 2]	Washington D C	W Freeman	318	3		2	2	
Cook County Hospital[1, 2]	Chicago	W R Kirschbaum	347	3	2	2	1	50
Northwestern University Medical Center[4, 6]	Chicago	B Boshes	254		1	2	3	
St Luke s Hospital[1-2]	Chicago	R Mackay	192	2	1	2	2	50
University of Chicago Clinics[1, 2]	Chicago	R B Richter	254	4	1	2	2	175
University of Illinois *Neuropsychiatric Institute*[1]	Chicago	E Oldberg					3	110
Indiana University Medical Center and Affiliated Hospitals								
Indianapolis General Hospital[1-103, 76]	Indianapolis	A. Ross	210	86	1	1	3	300
Indiana University Medical Center[1, 103, 6-]	Indianapolis	A. Ross			2	6	3	165
Methodist Hospital[1, 2]	Indianapolis	M. De Armond	534		1	1	1	278
University Hospitals[1, 2, 54]	Iowa City	A. L Sahs	1,129	23	2	4	3	75
University of Kansas Medical Center[1]	Kansas City Kan	A. T Steegmann	130	7	1	1	2	125
Louisville General Hospital[1, 2]	Louisville Ky	E Roseman	846	67	1	3	3	
Charity Hospital of Louisiana								
Louisiana State University Unit	New Orleans	R A Matthews	689	4	1	3	1	100
Tulane University Unit[1]	New Orleans	R G Heath	601	16	1	3	3	100
Baltimore City Hospitals[1, 2]	Baltimore	J W Magladery	803	51	1	2	3	75
Johns Hopkins Hospital[1, 2]	Baltimore	F Ford				2	2	20
Boston City Hospital[1-2]	Boston	D E Denny Brown	354	8	3	5	3	112
Massachusetts General Hospital[1-2]	Boston	R D Adams	658		1	3	3	
New England Center Hospital[1, 2, 3, 8]	Boston	J F Sullivan				2	1	83
University Hospital[1, 2]	Ann Arbor Mich	R De Jong	982	9	2	8	3	140
Henry Ford Hospital[1, 2]	Detroit	L D Proctor	336	7	1	3	3	225
University of Minnesota Hospitals[1-2]	Minneapolis	A. B Baker	642	37	1	7	3	162
Mayo Foundation[1, 2]	Rochester Minn	H. W Woltman	3,818	53	5	17	3	150
Barnes Hospital[1, 2]	St Louis	J L O Leary	520	9		1	2	50
Albany Hospital[1, 2]	Albany N Y	R. W Graves	410	11	1	3	3	75
Jewish Sanitarium and Hosp for Chronic Diseases[1, 2]	Brooklyn	A. M. Rabiner	421	12	1	3	2	175
Kings County Hospital[1, 2]								
University Service	Brooklyn	A. M Rabiner	1 611	70	2	4	3	98
Buffalo General Hospital[1, 3]	Buffalo	I. M. Hyman			1	1	1	125
Bellevue Hospital Center								
Division II—Cornell University[1, 2]	New York City	L Hausman	427	35		2	3	98
Division III—N Y University College of Med.[1, 2, 16]	New York City	M. Bender	656	12	6	16	3	98
Goldwater Memorial Hospital[1-2]								
University Service	New York City	M. Tarlau—J Wilder	492	6	2	6	1	69
Lenox Hill Hospital[1, 2]	New York City	A. Bell	397	10	1	1	2	150
Metropolitan Hospital[1, 2]	New York City	I Tarlov	94	3	1	1	1	150
Montefiore Hospital[1-2]	New York City	T J C Von Storch	594	84	2	4	3	75
Morrisania City Hospital[1, 2]	New York City	D Arbuse		2	1	1	2	
Mount Sinai Hospital[1, 2]	New York City	M. Bender	851	15	4	7	3	50
New York City Hospital[1, 2]	New York City	M. Helfand	493	15	1	2	2	98
Presbyterian Hospital[1, 2]	New York City	H H Merritt	3 011		10	15	3	
North Carolina Memorial Hospital[1]	Chapel Hill N C	T W Farmer	110	4	2	4	3	145
Duke Hospital[1, 2, 2-0]	Durham N C	E C Kunkle	251		2	4	2	42
North Carolina Baptist Hospital[1-2]	Winston Salem N C	R L Masland	156		1	3	3	125
Cincinnati General Hospital[1, 2]	Cincinnati	C Aring	870	85	1	3	3	
Cleveland Clinic Hospital[1, 2]	Cleveland	L J Karnosh	116	2	1	2	2	175
University of Oregon Medical School Hospitals and Clinics[1, 2]	Portland Ore				1	1	1	
Graduate Hospital of the University of Pennsylvania[1, 2]	Philadelphia	J C Yaskin	672	9	1	2	2	
Hospital of University of Pennsylvania[1, 2]	Philadelphia	G Gammon	429	3	3	8	3	100
Jefferson Medical College Hospital[1, 2]	Philadelphia	B J Alpers	512	8	1	3	3	
Philadelphia General Hospital[1, 2]	Philadelphia	J Taeffner	1,530	134	2	6	3	113
St Francis Hospital[1, 2]	Pittsburgh	H. L Mitchell	974		1	2	2	150
Parkland Hospital[1, 2]	Dallas Texas	D W Seldin			1	1	1	125
University of Texas Medical Branch Hosps[1, 2, 2-]	Galveston Texas	T Harris					1	
University Hospitals	Madison Wis							
State of Wisconsin General Hospital[1]		W J Bleckwenn	(Included in Psychiatry)				3	

Numerical and other references will be found on pages 414 to 416.

12 OBSTETRICS AND GYNECOLOGY

The following services have been approved by the Council and the American Board of Obstetrics and Gynecology
Hospitals, 442, Assistant Residencies and Residencies, 2,003

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
FEDERAL									
UNITED STATES ARMY									
Letterman Army Hospital [1,3,66]	San Francisco	E A Zimmermann	OBG	2 903				3	
Fitzsimons Army Hospital [1,66]	Denver	F N Akers	OBG	3 348	41			3	
Army Medical Center [1,3,66,67]	Washington D C	H L Riva	OBG	3 041		2	6	3	
Brooke Army Medical Center [3,66-250]	San Antonio, Texas	I W Simpson	OBG	3,851	5			3	
Tripler Army Hospital [1,66]	Honolulu, T H	W H Hanson	OBG	3,537	1	2	6	2	400
UNITED STATES NAVY									
U S Naval Hospital [1,3]	Oakland, Calif	E T Knowles	OBG	4,800	1			3	
U S Naval Hospital [1]	San Diego Calif	P Peterson	OBG	6,108	15	7	7	3	
U S Naval Hospital [1,3]	Great Lakes Ill	M M Rubin	OBG	8,270			3	2	
U S Naval Hospital [1,3]	Bethesda Md	H H Hill	OBG	8,838	5	6	6	3	
U S Naval Hospital [1]	Chelsea, Mass	L T Dorgan	OBG	2,209		2	4	3	
U S Naval Hospital [1]	St Albans N Y	S L Arje	OBG	3 129				2	
U S Naval Hospital [1,3]	Philadelphia	S I Winter	OBG	2 707	2	4	4	3	
U S Naval Hospital [1,3]	Portsmouth Va	H Hirshland	OBG	6,548	2	2	4	3	
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE									
Freedmen's Hospital [1,3]	Washington, D C	J W Ross	OBG	4 394	7		6	3	
NONFEDERAL									
Carraway Methodist Hospital [1,3]	Birmingham, Ala	T M Boulware	OB	2 442		1	1	1	200
Jefferson Hillman Hospital [1,3,312]	Birmingham, Ala	J R Garber							
		W N Jones	OBG	5 915	6	2	6	3	
Lloyd Noland Hospital [1-3]	Fairfield, Ala	O T West	OB	2,428	1	1	3	2	225
Good Samaritan Hospital [1-3]	Phoenix Ariz.	C Van Epps	OBG	3 881		2	2	1	250
Maricopa County General Hospital [1,3]	Phoenix Ariz	R Jennett	OBG	2 088	2		1	1	
St Joseph's Hospital [1,3,75]	Phoenix Ariz	C B Warrenburg	OBG	4 551		1	1	1	225
University Hospital [1,315,316]	Little Rock Ark	W E Brown	OBG	3 002	2	6	15	3	120
Herrick Memorial Hospital [1,3,17]	Berkeley Calif	T R Hofmann	OBG	3,140	2	1	3	1	
San Joaquin General Hospital [1]	French Camp Calif	D Harrington	OBG	1 311	27	1	3	3	235
Glendale Sanitarium and Hospital [1]	Glendale Calif	J B Brown	OBG	2,839	1	1	1	1	164
Seaside Memorial Hospital [1-3]	Long Beach Calif	S G Pillsbury	OBG	4 170	1	1	1	1	150
California Hospital [1-3-16]	Los Angeles	G W Hewitt	OB	2 920	2	4	10	2	150
Hospital of the Good Samaritan [1,3]	Los Angeles	R D McBurney	OBG	3,547		1	2	2	200
Los Angeles County General Hospital [1]	Los Angeles	B J Hanley	OBG	18,580	28	3	13	3	200
Presbyterian Hospital Olmsted Memorial [1,3]	Los Angeles	J L Gaspar							
		H C Gernand	OBG	3,335	1	1	3	3	125
Queen of Angels Hospital [1-3]	Los Angeles	A M McCarthy	OBG	7 284	6	2	4	3	
White Memorial Hospital [1-3]	Los Angeles	E Larsson	OBG	2,004	2	2	4	3	
Highland Alameda County Hospital [1-3]	Oakland Calif	G F Calvin	OBG	3 304	4	8	4	3	195
Kaiser Foundation Hospital [1,3]	Oakland Calif	R W King	OBG	4 892	4	5	15	3	175
Collis P and Howard Huntington Mem Hosp [1-3,333]	Pasadena, Calif	G Macer	OBG	3 095		1	1	1	250
Mercy Hospital [1-3]	San Diego, Calif	P L Martin	OBG	7,219		1	4	2	175
an Diego County General Hospital [1,3]	San Diego Calif	P L Martin	OBG	1,110	4	1	2	2	
hildren's Hospital [1-3]	San Francisco	D A Dallas	OBG	8 055	1	2	4	2	175
ary's Help Hospital [1-3]	San Francisco	C L Cooley	OBG	2 771	1	1	2	2	250
t Francis Memorial Hospital [1-3]	San Francisco	C D Hart	OBG	2 553		2	3	2	300
St Joseph's Hospital [1-3]	San Francisco	H von Geldern	OBG	1 006	2	1	2	2	150
St Luke's Hospital	San Francisco		OBG					2	
St Mary's Hospital [1-3]	San Francisco	P H Arnot	OB	2 034	1	1	3	1	150
San Francisco Hospital									
Stanford University Service [1,3-30]	San Francisco	E B King	OBG	1,514		2	3	3	175
University of California Service [1-3]	San Francisco	P E Hoffmann	OBG	1,447		2	3	3	175
Stanford University Hospital [1,3]	San Francisco	C E McLennan	OBG	2 936		4	10	3	80
University of California Hospital [1-3-30-40,321]	San Francisco	H F Traut	OBG	2,250	6		9	3	87
Santa Clara County Hospital [1]	San Jose, Calif	J C Muir	OBG	1 544	1	2	4	2	200
St John's Hospital	Santa Monica, Calif	B H Watson	OBG	4 287		1	1	2	175
Harbor General Hospital [1,3]	Torrance Calif	D G Morton	OBG	2,872	7	3	6	3	200
Presbyterian Hospital [1-3]	Denver	M. O Waddell	OBG	3 327	1	1	1	1	150
St Joseph's Hospital [1]	Denver	H J Von Detten	OBG	3 359		1	3	3	150
University of Colorado Medical Center									
Colorado General Hospital [1,3-22]	Denver	E S Taylor	OBG	1,818	11	3	9	3	
Denver General Hospital [1-3,22]	Denver	N P Isbell	OBG	1 593	7			3	
Bridgeport Hospital [1-3]	Bridgeport, Conn	C Griswold	OB	3 074		1	2	2	125
St Vincent's Hospital [1,3-420]	Bridgeport, Conn	F Kinder	OB	2 900	1	2	4	2	300
Hartford Hospital [1-3]	Hartford, Conn	R W Storrs	OBG	8 857	4	1	3	3	75
St Francis Hospital [1-3]	Hartford Conn	L P James	OBG	4 882	1	1	3	3	100
New Britain General Hospital [1-3]	New Britain, Conn	D A Bristoll	OBG	2,768	1	1	2	2	160
Grace New Haven Community Hospital [1-3]	New Haven, Conn	C L Buxton							
		J A Florito	OBG	5,895	8	4	12	3	50
Hospital of St Raphael [3]	New Haven, Conn	O Johnson	OBG	6 780		2	5	3	125
Lawrence and Memorial Associated Hospitals [1-3]	New London, Conn	E H Blank	OBG	2 511		2	2	1	300
Norwalk Hospital [1-3]	Norwalk, Conn	G V Gorham	OB	1 958		1	1	1	100
Delaware Hospital [1-3]	Wilmington, Del	S W Rennie	OBG	4 467		1	2	2	160
Columbia Hosp for Women and Lying In Asylum [1,3]	Washington, D C	P Haynes	OBG	7,161	5	3	9	3	60
District of Columbia General Hospital [1,3]	Washington, D C	J Parks							
		A Marchetti	OBG	7,817	7	3	7	3	100
Doctors Hospital [1-3]	Washington, D C	J K Cromer	OBG	3,418	1	1	2	2	150
Garfield Memorial Hospital [1-3]	Washington, D C	W D Terrell							
		H P Ramsey	OBG	3 828	2	2	6	3	
Georgetown University Hospital [1-3]	Washington, D C	A A Marchetti	OBG	4,298		3	7	3	
George Washington University Hospital [1,3]	Washington, D C	J Parks	OBG	5,277	22	1	4	3	155
Providence Hospital [1-3]	Washington, D C	G Ellis	OBG	3,394	1	1	8	3	200
Sibley Memorial Hospital [1-3-300]	Washington, D C	J Kotz	OBG	3 801		2	6	2	200
Duval Medical Center [1-3]	Jacksonville, Fla	F Richards	OBG	2 244	11	1	2	2	150
St Luke's Hospital	Jacksonville, Fla	J C Taylor							
		F Richards	OBG	2,956		2	4	2	200
St Vincent's Hospital [1-3]	Jacksonville, Fla	E F McCall							
		V Hughes	OBG	5 030	1	1	1	3	125
Jackson Memorial Hospital [1-3]	Miami, Fla	J D Milton	OBG	4,634	1	2	6	3	75
Mount Sinai Hospital	Miami Beach Fla	H Kraff	OBG	1 744	17	1	1	2	250
Orange Memorial Hospital [1-3]	Orlando, Fla	D D Bram							
		H A Day	OBG	8,553	7	1	2	2	
Mound Park Hospital [1]	St Petersburg, Fla	J Pilkington	OBG	1,403	2	1	1	1	2 3
Tampa Municipal Hospital [1-3]	Tampa, Fla	H G Nix	OBG	2,100	2	1	1	1	125
Crawford W Long Memorial Hospital [1-3-72]	Atlanta, Ga	R K Hancock	OBG	8 541	1	6	10	3	110

Numerical and other references will be found on pages 414 to 416

12 OBSTETRICS AND GYNECOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Autopsies	First Year Residencies Offered	Total Residencies Offered	Length of Approved Program (Years)	Beginning Stipend (Month)
Georgia Baptist Hospital[1,3]	Atlanta Ga	R A Bartholomew	OBG	1 432	1	3	7	2	290
Grady Memorial Hospital[1,3]	Atlanta Ga	W L Caton	OBG	7,166	8	5	15	3	20
Piedmont Hospital[1]	Atlanta Ga	C B Upshaw	OBG	2,261		1	1	1	180
St Joseph's Infirmary[1,3]	Atlanta Ga	M. T Benson Jr	OBG	2,296		1	3	2	180
University Hospital[1,3]	Augusta Ga	R Torpin	OBG	4,943	4	4	10	3	160
Augustana Hospital[1,3]	Chicago	W H Browne	OB	1 114	1	2	2	1	150
Chicago Maternity Center[1,3,9]	Chicago	B E Tucker H B Benaron	OB	4,550	1	3	11	1	150
Chicago Wesley Memorial Hospital[1,3]	Chicago	G H Gardner	OBG	3,123		2	7	3	50
Cook County Hospital[1,3]	Chicago	F H Falls A Webster	OBG	18 440	12	18	18	3	50
Englewood Hospital[3,9]	Chicago	C D Krause	OB	1,588		1	1	1	200
Frank Cuneo Memorial Hospital[3,80]	Chicago	A Daro—H Maryan	OBG	2,095	6	1	3	2	150
Grant Hospital[1,3]	Chicago	W J Reich	OBG	2 193	1	3	3	3	150
Henrotin Hospital[1,3]	Chicago	J R Wolff	OB	859		1	1	1	200
Hospital of St Anthony de Padua[1,3]	Chicago	F J Fara	OB	1,991		2	2	1	250
Illinois Masonic Hospital[1,3]	Chicago	F J Roos	OBG	2,528		2	2	2	115
Lewis Memorial Maternity Hospital[1,3,94]	Chicago	H E Schmitz	OBG	3,338	7	4	13	3	
Loretto Hospital[1,3]	Chicago	J J O Hearn	OB	1 199		1	1	1	200
Lutheran Deaconess Home and Hospital[3]	Chicago	A D Green	OB	1,360	1	2	2	1	200
Mercy Hospital[85]	Chicago	H. E Schmitz	OBG	1 952	4		2	3	100
Michael Reese Hospital[1,3]	Chicago	A K Koff	OBG	4,979		2	6	3	50
Mount Sinai Hospital[1,3]	Chicago	A. J Kobak	OBG	3 183	5		3	3	
Passavant Memorial Hospital[1,3]	Chicago	J I Brewer	OBG	1 975	2	1	3	3	50
Presbyterian Hospital[1,86]	Chicago	E Allen	OBG	2,846	2	3	7	3	125
Provident Hospital[1,3]	Chicago	R C Stepto	OBG	3 176	23	3	5	3	200
Ravenswood Hospital[1,3]	Chicago	R E Bartelson	OBG	1,534		2	2	1	75
St Anne's Hospital[1]	Chicago	R J Hawkins	OBG	4,317	2	6	6	3	50
St Elizabeth Hospital[3]	Chicago	J R Lavieri	OBG	3,670	8	3	3	2	150
St Joseph Hospital[1,3]	Chicago	C Geiger	OBG	2 081		2	4	3	200
St Luke's Hospital[1,3]	Chicago	E Edwards	OBG	2,584	5	2	6	3	50
St Mary's of Nazareth Hospital	Chicago		OBG					1	
Swedish Covenant Hospital[1,3]	Chicago	G L Rosene	OB	2 073		1	2	1	
University of Chicago Clinics[1,3] Billings Hospital Chicago Lying In Hospital and Dispensary	Chicago	M. E Davis	OBG	6 080	12	14	23	3	175
University of Illinois Research and Educational Hospital[1]	Chicago	F H Falls	OBG	2,257	6	2	6	3	110
Women and Children's Hospital	Chicago	A Phillips	OB	979	1	1	1	2	100
		L Snow	GYN	552		1	1	1	100
Evanston Hospital[1]	Evanston Ill	D N Danforth	OBG	2 873	6	1	3	3	
St Francis Hospital	Evanston Ill.	J M. Bailey	OBG	4 481	7	1	3	3	175
Little Company of Mary Hospital[1,3]	Evergreen Park Ill.	P E Lawler W T Carlisle	OBG	5,183		5	5	3	175
West Suburban Hospital	Oak Park, Ill.	F H Falls	OBG	5,316	1	2	4	2	225
Methodist Hospital of Central Illinois[1,3]	Peoria Ill	R. W Brandes	OB	2 754		2	2	1	200
St Francis Hospital[1,3]	Peoria Ill	W A Michael	OBG	4 655		1	2	2	225
Indianapolis General Hospital[1]	Indianapolis	W J Hofmann	OBG	3,509	33	2	6	3	300
Indiana University Medical Center[1]	Indianapolis	C P Huber	OBG	4,147	2	2	6	3	165
Methodist Hospital[1,3]	Indianapolis	L J Clark	OB	7,214	2	1	2	2	278
St Vincent's Hospital[1]	Indianapolis	P F Muller	OBG	3 101	2	1	3	3	275
St Elizabeth Hospital[1,3]	Lafayette Ind	F. W Peyton	OBG	2,114		1	3	2	175
University Hospital[1,3]	Iowa City	J H Randall	OBG	2,325	2	4	12	3	
University of Kansas Medical Center[1]	Kansas City Kan	L A Calkins	OBG	2,613	5	2	6	3	125
St Francis Hospital[1,3]	Wichita Kan	N C Siebert	OBG	4,824	1	1	3	1	275
Wesley Hospital[1,3]	Wichita Kan	E X Crowley	OBG	4 035	3	1	1	1	175
St. Joseph Hospital[3]	Lexington Ky	A. B Barrett	OBG	2,034			1	1	230
Louisville General Hospital[1,3]	Louisville Ky	W O Johnson	OBG	3,608	1	3	8	3	105
St Joseph Infirmary[1,3,111]	Louisville Ky	E R Cadden	OBG	3,893	7	1	3	3	185
Charity Hospital of Louisiana Independent Unit[1]	New Orleans	A Jacobs	OBG	4 795	10	3	9	3	100
Louisiana State University Unit[1]	New Orleans	M. L. McCall	OBG	7 176	7	4	12	3	100
Tulane University Unit[1]	New Orleans	C G Collins	OBG	7,078	14	4	12	3	100
Hotel Dieu Sisters' Hospital[1]	New Orleans	E Nelson	OBG	4,556	1	2	4	1	200
Ochsner Foundation Hospital[1]	New Orleans	C Tyrone	OBG	314		2	5	3	200
Southern Baptist Hospital[1,117]	New Orleans	S V Ward	OBG	6,534		2	4	3	225
Touro Infirmary[1,116]	New Orleans	A Caire Jr E P Thomas	OBG	4 440	3	2	6	3	100
Confederate Memorial Medical Center[1]	Shreveport La	C R Mays	OBG	5 053	1	3	9	3	150
Baltimore City Hospitals[1,3]	Baltimore	L H Douglass	OBG	4,295	15	2	7	3	50
Bon Secours Hospital[3]	Baltimore	E Novak H. B McNally	OBG	3,200	2	1	3	3	275
Church Home and Hospital[1,3]	Baltimore	J K B E Seegar H W Jones Jr	OB	1 012		1	1	1	200
Franklin Square Hospital[1,3]	Baltimore	I A Siegel	OBG	1,257	1	2	7	3	
Hospital for Women[1,3]	Baltimore	J Savage—L Brady	OBG	5 010		7	11	3	220
Johns Hopkins Hospital[1,3,122]	Baltimore	N J Eastman R W TeLinde	OBG	6,376	24		22	3	20
Lutheran Hospital[1,3]	Baltimore	W N Long Jr W K. Diehl	OBG	3 618		2	6	3	220
Maryland General Hospital[1,3,124]	Baltimore	D McDixon J D Woodruff	OBG	2,424	3	3	6	3	275
Mercy Hospital[1,3]	Baltimore	J J Erwin F K. Morris	OBG	3 700	1	2	4	3	275
Provident Hospital and Free Dispensary[1,3]	Baltimore	L H Douglass	OB	1 636		2	2	1	
St Agnes Hospital[1,3,1]	Baltimore	H B McNally E Novak	OBG	2,250	1	1	3	2	
St Joseph's Hospital[1,3]	Baltimore	J B Boyle Jr G A. Galvin	OBG	1,977	1	2	4	3	225
Sinai Hospital[1,3]	Baltimore	I A Siegel	OB	3 401				2	110
		A A Sondheimer	GYN	1 749	1	3	9	1	110
South Baltimore General Hospital[1,3,120]	Baltimore	J K B E Seegar	OB	1,150		2	3	2	170
Union Memorial Hospital[1,3,120]	Baltimore	J M Haws	OB	2 052	1	2	3	2	115
University Hospital[1,3,130]	Baltimore	L H Douglass J M. Hundley Jr	OBG	4,376		4	13	3	50
Beth Israel Hospital[1,3]	Boston	H H. Rosenfield	OBG	2,522		3	4	2	100
Boston City Hospital[1,3]	Boston	B Tenney Jr	OBG	5,245	6	5	14	3	112
Boston Lying In Hospital[1,3,141]	Boston	D E Reid	OB	7 751		6	12	3	50

Numerical and other references will be found on pages 414 to 416

12. OBSTETRICS AND GYNECOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Autopsies	First Year Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Carney Hospital[1-3, 143]	Boston	R J Heffernan	OBG	838		4	12	3	125
Massachusetts Memorial Hospitals[1-3]	Boston	L Parsons	OBG	1,746	5	1	4	3	100
New England Hospital[1-3]	Boston	D Souza	OB	1,404		1	8	2	50
St Elizabeth's Hospital[1-3]	Boston	W McDonald	OB	2,506		1	2	2	125
St Margaret's Hospital[3, 379]	Boston	D J McSweeney	OB	4,055		2	4	2	125
Booth Memorial Hospital[1, 3]	Brookline, Mass	H Finkel	OB	594		2	2	1	200
Free Hospital for Women[1-3-133]	Brookline, Mass	G Van S Smith	GYN	3,163		4	12	3	
Cambridge City Hospital[1, 3]	Cambridge Mass	P P McGovern	OBG	2 174		1	3	3	160
St Anne's Hospital[3]	Fall River, Mass	E F Shay	OBG	1 650		1	1	1	150
Quincy City Hospital[1-3]	Quincy, Mass	G D Dalton	OBG	2,575	2	1	1	1	183
St Joseph's Mercy Hospital[1-3]	Ann Arbor, Mich	H H Cummings	OBG	2 286	2	2	4	3	200
University Hospital[1, 3]	Ann Arbor, Mich	N Miller	OBG	8,718	21	3	12	3	140
Detroit Memorial Hospital[1-3]	Detroit	R B Edmondson	OBG	2,218	8	1	8	3	250
Evangelical Deaconess Hospital[1, 3]	Detroit	L Braun							
		L T Henderson	OBG	2 488		1	1	1	265
Florence Crittenton Hospital[1-3]	Detroit	H A Pearse	OBG	3 847	11	2	6	3	225
Grace Hospital[1-3]	Detroit	O W Pickard	OBG	9 885	1	4	16	3	225
Harper Hospital[1, 3]	Detroit	H C Mack	OBG	5,751	4	2	6	3	225
Henry Ford Hospital[1-3]	Detroit	C P Hodgkinson	OBG	3 800			8	3	225
Herman Kiefer Hospital[1-3]	Detroit	C S Stevenson	OB	5,570	3	2	4	2	265
Mount Carmel Mercy Hospital[1-3]	Detroit	C N Swanson	OBG			3	9	3	225
Providence Hospital[1-3]	Detroit	H Henderson	OBG	5 357	5	2	5	3	250
Receiving Hospital[1, 3, 149]	Detroit	C S Stevenson	GYN	1 247	5	2	6	3	200
St John Hospital[1-3]	Detroit	J Ottaway	OBG	2,471	1	1	8	1	
St Joseph Mercy Hospital[1-3, 389]	Detroit	J Clifford	OBG	3,190	2	1	3	2	240
Sinai Hospital	Detroit		OBG					2	
Woman's Hospital[1, 3]	Detroit	R B Kennedy							
		H M Nelson	OBG	6 644	9	2	6	3	250
Hurley Hospital[1]	Flint Mich	I H Gutow	OBG	3,781	6	1	3	2	325
Blodgett Memorial Hospital[1-3, 152]	Grand Rapids, Mich	C M Bell	OBG	2 811	4	1	2	2	200
Butterworth Hospital[1]	Grand Rapids, Mich	L C Bosch	OBG	4 925	18	2	6	3	225
St Mary's Hospital[1, 3]	Grand Rapids Mich	J H Beaton	OBG	4 091	3		2	1	200
Pontiac General Hospital[1-3-155]	Pontiac, Mich	H A Furlong	OBG	4 305	1	1	8	3	300
St Joseph Mercy Hospital[1-3]	Pontiac, Mich	F Gaensbauer	OBG	5,198	2		2	2	325
Saginaw General Hospital[1-3]	Saginaw Mich	C E Toshach	OBG	2 564		1	3	3	325
Minneapolis General Hospital[1-3]	Minneapolis	W P Sadler	OBG	1 054	4	1	3	3	182
Northwestern Hospital[1-3]	Minneapolis	W P Sadler	OBG	8,553		1	2	2	200
St Barnabas Hospital[1-3]	Minneapolis	O F Robbins	OBG	3,106		1	2	2	175
St Mary's Hospital[1-3]	Minneapolis	L A Lang	OBG	5 460	6	2	4	2	200
University of Minnesota Hospitals[1, 3, 305]	Minneapolis	J L McKelvey	OBG	1 579	9	1	5	3	162
Mayo Foundation[1-3]	Rochester Minn	L M Randall	OBG	4,500	10	4	14	3	150
Ancker Hospital[1-3]	St Paul	E M Kasper	OBG	1,075	2	1	1	3	162
Charles T Miller Hospital[1-156]	St Paul	R S Countryman							
		A F Hayes	OBG	2,055	1	1	2	3	185
St Louis County Hospital	Clayton, Mo	E L Dorsett	OBG	956	1	1	3	3	275
Kansas City General Hospital No 1[1-3]	Kansas City, Mo	J G Webster	OBG	1,534	4	1	4	3	150
Kansas City General Hospital No 2[1-3]	Kansas City Mo	H L Gainey	OBG	1 500	5	2	6	3	
St Joseph Hospital[3]	Kansas City, Mo	A B Sinclair Jr	OBG	2 394		1	2	2	200
St Luke's Hospital[1-3]	Kansas City Mo	J M Singleton	OBG	4,000	8	2	4	3	175
Barnes Hospital[1-3]	St Louis	W Allen	OBG	6 507	5	4	10	3	50
De Paul Hospital[1-3]	St Louis	R V Boedeker	OBG	3 373	3	1	2	2	200
Homer G Phillips Hospital[1-3, 167]	St Louis	K C Morris	OBG	5 959	11	3	8	3	216
Jewish Hospital[1-3, 168]	St Louis	H C Wasserman	OBG	2 594	5	1	4	2	100
Missouri Baptist Hospital[1-3]	St Louis	J B O Neill	OBG	2 101	11	1	2	1	175
St John's Hospital[1, 3]	St Louis	M W Weis	OB	2,955	2	1	1	1	150
St Louis City Hospital[1-3]	St Louis	R Crossen							
		L Hartnett	OBG	2 331	11	4	8	3	137
St Luke's Hospital[1-3]	St Louis	G J L Wulff Jr	OBG	1,900			2	3	200
St Mary's Group of Hospitals[1-3-167]	St Louis	J A Hardy, Jr	OBG	8,395	3	5	11	3	65
Lincoln General Hospital[1-3]	Lincoln Neb	H E Harvey	OBG	1 304	6	1	1	1	200
St Elizabeth Hospital[1-3]	Lincoln Neb	S T Thierstein	OBG	2 050	1	1	1	1	250
Bishop Clarkson Memorial Hospital	Omaha	C F Moon	OBG	1,297		1	1	1	175
Creighton Memorial—St Joseph's Hospital[3]	Omaha	M E Grier	OBG	8,522	7	2	4	3	175
Immanuel Hospital[1]	Omaha	H E Anderson	OBG	1,754	1	1	1	1	175
University of Nebraska Hospital	Omaha	L S McGoogan	OBG	1,044	1	2	4	3	
Cooper Hospital[1-3]	Camden N J	G B German							
		H P Shipps	OBG	4 457	5	2	4	3	200
Hackensack Hospital[1-3]	Hackensack, N J	H B Wilson	OB	4,176	20	2	2	1	125
Medical Center—Jersey City Hospital[1-3-174]	Jersey City, N J	E N Bookrajian	GYN	944	6	2	5	2	66
Margaret Hague Maternity Hospital[1-3-175]	Jersey City N J	S A Cosgrove	OB	10,316	77	4	12	3	66
Monmouth Memorial Hospital[1-3]	Long Branch N J	W Shanik	OB	1,716		1	1	1	200
Newark Beth Israel Hospital[1-3]	Newark, N J	O Glass	OBG	5 107	11	1	3	2	75
St Michael's Hospital[1-3]	Newark, N J	G W Hayes	OB	3 118		1	2	2	125
Paterson General Hospital[1-3]	Paterson, N J	L E Thron	OB	2 742		1	1	1	125
Holy Name Hospital[3]	Teaneck, N J	J W Prather	OBG	2,788		1	1	2	125
Albany Hospital[1-3-409]	Albany, N Y	T O Gamble							
		A J Wallingford	OBG	4,485	5	2	4	3	75
Anthony N Brady Hospital[1-3-170]	Albany, N Y	J G Hayes	OB	3,360		3	3	2	200
Beth El Hospital[1-3]	Brooklyn	W Levine	OBG	4,940		4	8	3	150
Brooklyn Hospital[1, 3]	Brooklyn	J T Wallace	OBG	2 183		1	4	3	100
Brooklyn Women's Hospital[1-3]	Brooklyn	P Topkins	OBG	2,127		2	4	1	125
Coney Island Hospital[1-3]	Brooklyn	M G Der Brucke	OBG	1,351		1	2	2	
Cumberland Hospital[1-3]	Brooklyn	S Lubin	OBG	2 644		4	7	3	
Greenpoint Hospital[1-3]	Brooklyn	W C Meagher	OBG	2,451	1	2	6	2	93
Jewish Hospital[1-3]	Brooklyn	H Boley—S Schenck	OBG	7,416	1	2	8	3	75
Kings County Hospital University Service[1-3]	Brooklyn	L M Hellman	OBG	10 168	17	8	20	3	65
Long Island College Hospital[1-3]	Brooklyn	M Glass	OBG	8,424		2	5	3	
Maimonides Hospital[1-3]	Brooklyn	E Solomons	OBG	4,152	2	1	6	3	35
Methodist Hospital[1-3]	Brooklyn	H S Acken, Jr							
		S C Hall	OBG	8,889	1	2	8	3	75
Norwegian Lutheran Deaconess Home and Hosp[1-3]	Brooklyn	B A Harris, Sr	OBG	2,700	1	1	3	3	100
St Catherine's Hospital[1-3]	Brooklyn	C H Gordon	OBG	2 112		2	6	3	
St John's Episcopal Hospital[1-3-183]	Brooklyn	C W Mueller	OBG	2,530		1	3	3	175
St Mary's Hospital[1-3]	Brooklyn	A A Schenone	OBG	2 448		1	3	3	175
Unity Hospital[1-3]	Brooklyn	M Der Brucke	OBG	2 808	1	2	4	2	100
Wyckoff Heights Hospital[1-3]	Brooklyn	F W Benschine	OBG	2 091		1	3	1	100
Buffalo General Hospital[1-3, 180]	Buffalo	C L Randall	OBG	3,487	3	4	8	3	125
Deaconess Hospital[1-3]	Buffalo	W H Burwig	OBG	3,307	2	1	3	1	250
Edward J Meyer Memorial Hospital[1-3-186]	Buffalo	E G Winkler	OBG	1,934	12	1	4	3	179

Numerical and other references will be found on pages 414 to 416

12 OBSTETRICS AND GYNECOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
Millard Fillmore Hospital[1, 2]	Buffalo	L F McLean	OBG	6,542	2	2	6	3	
Sisters of Charity Hospital[1, 2, 19]	Buffalo	E G Winkler	OBG	5,210		2	7	3	210
Mary Imogene Bassett Memorial Hospital[1, 2]	Cooperstown N Y	O J Severud	OBG	661	2		1	3	143
Flushing Hospital and Dispensary[1, 2, 200]	Flushing N Y	F Carpenter	OBG	5,320	1	1	3	3	200
Meadowbrook Hospital[1]	Hempstead N Y	G T Lilly	OBG	1 736	1	1	3	2	225
Mary Immaculate Hospital[1, 2]	Jamaica N Y	J P McManus	OB	2 491	1	1	1	1	120
Queens General Hospital[1-3]	Jamaica N Y	E C Veprovsky	OBG	2,530	12	2	4	3	98
Charles S Wilson Memorial Hospital[1, 2]	Johnson City N Y	G R Cheatham	OBG	3 033	4		2	3	200
Nassau Hospital[1, 2]	Mineola N Y	A. F Wright	OBG	4 069	1	1	2	2	170
Mt Vernon Hospital[2]	Mt Vernon N Y	N M. Weinrod	OB	1 644		1	1	1	200
Bellevue Hospital Center									
Div III—N Y University College of Medicine[1, 2]	New York City	W Studdiford	OBG	6 075	71	4	6	3	98
Beth David Hospital[1, 2]	New York City	M F Goldberger	OBG	1,559		1	2	2	
Beth Israel Hospital[1, 2]	New York City	H C Falk	OBG	3 634		2	8	3	120
Bronx Hospital[1, 2]	New York City	A C Posner A J Fleischer	OBG	3 759		2	6	1	50
Flower and Fifth Avenue Hospitals[1-3]	New York City	C E Folsome	OBG	3,804	3	1	3	3	
Fordham Hospital[1-3]	New York City	M. L Brandt	OBG	2,119	1	2	4	3	93
Francis Delafield Hospital[1-3, 208]	New York City	H C Taylor Jr	GYN	229	34		4	1	98
French Hospital[1, 2]	New York City	H C Falk C E Heaton	OBG	2,326	2	2	4	2	83
Harlem Hospital[1-3]	New York City	A C Posner M L Bobrow	OBG	7,330	5	2	6	3	93
Hospital for Joint Diseases[1-3]	New York City	E L Hecht	GYN	293	2	1	1	1	70
Jewish Memorial Hospital[1, 2]	New York City	M. Brandt M J Goodfriend	OBG	2,327		1	1	1	150
Lenox Hill Hospital[1-3]	New York City	L D'Donnell J C Kilroe	OBG	3,271	2	1	3	3	180
Lincoln Hospital[1, 2]	New York City	W H. Godsick	OBG	4,247	12	3	9	3	65
Metropolitan Hospital[1, 2]	New York City	C E Folsome	OBG	3 765	9	2	6	3	98
Misericordia Hospital[1, 2]	New York City	J A Kelly	OB	1,842			2	2	75
Morrisania City Hospital[1-3]	New York City	M Goodfriend	OBG	2,979	5	1	4	3	
Mt Sinai Hospital[1, 2]	New York City	A Guttmacher	OBG	4,149	2	11	19	3	60
New York City Hospital[1, 2]	New York City	R. J Lowrie J V Ricci	OBG	2 707	4	1	5	3	09
New York Hospital[1-3]	New York City	R G Douglas	OBG	7 163	52	5	20	3	
New York Infirmary[1, 2]	New York City	C Mendez	OB	891		1	1	2	150
New York Polyclinic Medical School and Hospital[1, 2]	New York City	E H Dennen D N Barrows	OBG	2 062	1	2	4	2	100
New York University Bellevue Medical Center									
University Hospital[1-3]	New York City	W Studdiford	GYN	746	3	2	2	2	85
Presbyterian Hospital (Sloan Hospital for Women)[1, 2]	New York City	H C Taylor	OBG	7,149	16	6	19	3	
Roosevelt Hospital[1, 2]	New York City	T C Peightal	GYN	820	6	1	3	2	116
St Clare's Hospital[1, 2, 14]	New York City	M J Jordan	OBG	2,271	2	2	6	3	125
St Francis Hospital[1, 2, 19]	New York City	J S Labate	OBG	2,594	1	1	3	3	125
St Vincent's Hospital[1, 2]	New York City	B J Pisani	OBG	3 451	2	1	4	3	50
Sydenham Hospital[1, 2]	New York City	P M Murray	OBG	2,385	5	1	3	3	93
Woman's Hospital[1, 2]	New York City	A H Aldridge	OBG	6,252		4	12	3	60
United Hospital[1, 2]	Port Chester N Y	C N Jeffries	OB	1,212		1	1	1	200
Genesee Hospital[1-3, 216]	Rochester N Y	S R Snow Jr	OBG	2,908	3	2	4	3	75
Highland Hospital[1, 2]	Rochester N Y	F Fumia	OBG	2,391		1	2	3	100
Rochester General Hospital[1, 2]	Rochester N Y	J W Cooney	OBG	2 463	1	1	3	3	
Strong Memorial Rochester Municipal Hospitals[1, 2]	Rochester N Y	C J Lund	OBG	3,579	8	3	7	3	42
Ellis Hospital[1, 2]	Schenectady N Y	W Mallia—J Cornell	OBG	2,895	2	3	3	2	150
General Hospital[1]	Syracuse N Y	R J Pieri	OBG	2 428		1	2	2	192
St Joseph's Hospital[1, 2]	Syracuse N Y	L Fournier	OBG	3 426	1	2	2	1	191
State University of New York Medical Center[1-218]	Syracuse N Y	E C Hughes O Clark	OBG			4	12	3	191
North Carolina Memorial Hospital[1]	Chapel Hill N C	R A Ross	OBG	731	4	3	6	3	145
Charlotte Memorial Hospital[1, 2]	Charlotte N C	J A. Crowell	OBG	3,144	2	1	2	2	200
Duke Hospital[1, 2]	Durham N C	B Carter	OBG	3 031	9	4	10	3	42
Watts Hospital[1, 2]	Durham N C	R L Pearse	OB	1 444		1	1	1	100
Rex Hospital[1, 2]	Raleigh N C	R J Ruark A T Hamilton	OBG	3,155	1	1	2	2	250
St Agnes Hospital[1]	Raleigh N C	P J McElrath	OBG	708	1	1	1	1	250
City Memorial Hospital[1, 2]	Winston Salem N C	R L Wall Jr	OBG	2,989	1	1	1	1	
North Carolina Baptist Hospital[1, 2]	Winston Salem N C	F R Lock	OBG	2,519		2	5	3	125
St Luke's Hospital	Fargo N D	G W Hunter	OBG	1,858		1	1	1	300
City Hospital[1, 2]	Akron Ohio	A. Weil	OBG	7 120	1	2	7	3	235
Peoples Hospital[1, 3-15, 9]	Akron Ohio	D C Snyder	OBG	4,565		3	6	3	250
St Thomas Hospital[1, 2]	Akron Ohio	E F Hellwig	OBG	2,827		2	4	2	250
Aultman Hospital[1, 2]	Canton Ohio	J M. Scott	OBG	4,517		4	5	2	225
Mercy Hospital[1, 2]	Canton Ohio	R K. Ramsayer	OBG	3,874	2	1	3	2	200
Bethesda Hospital[1, 2]	Cincinnati	R D Bryant E E Rhoads	OBG	5 026	8	2	5	3	
Cincinnati General Hospital[1, 2]	Cincinnati	L Bossart S T Garber	OB	4,552	9	2	8	3	
City Hospital[1, 2]	Cleveland	A. E Bennett	OBG	3 421	4	2	9	3	140
Evangelical Deaconess Hospital[1]	Cleveland	J E Morgan	OB	2,093		1	3	1	150
Fairview Park Hospital[1, 2]	Cleveland	E D Richards	OB	2,530		2	2	1	120
Lutheran Hospital[1, 2]	Cleveland	R S Dial	OB	2 012		1	2	2	175
Mount Sinai Hospital[1, 2]	Cleveland	L H Biskind	OBG	4,921	1	2	6	3	215
St Ann Hospital[1, 2]	Cleveland	J E Slivka	OB	3,245	1	3	3	1	300
St John's Hospital[1, 2]	Cleveland	J V Heimann F G Fallon	OBG	2,868		2	5	2	170
St Luke's Hospital[1-3]	Cleveland	G B Hurd	OBG	5,047		1	4	3	120
University Hospitals[1, 2]	Cleveland	A C Barnes	OBG	6,222	6	4	15	3	125
Mount Carmel Hospital[1]	Columbus Ohio	R. F Daly	OB	3,800	1	1	3	2	250
Ohio State University Hospitals									
University Hospital[1, 2]	Columbus Ohio	Z J R Hollenbeck	OBG	5 100	14	2	8	3	150
St Ann's Hospital for Women	Columbus Ohio	Z J R Hollenbeck	OBG	4,212	1	2	4	2	250
White Cross Hospital[1]	Columbus Ohio	R M Ingeli	OBG	3,549	1	1	3	2	325
Good Samaritan Hospital	Dayton Ohio	H. E McKnight	OBG	5 759	3	2	4	3	250
Miami Valley Hospital[1, 2]	Dayton Ohio	C E Mumma	OB	5,193	2		1	1	165
Huron Road Hospital[1-3]	East Cleveland	J J Woodworth	OBG	4 090		2	6	3	210
Marymount Hospital[1, 2]	Garfield Hgts Ohio	A. H Dindia	OBG	2,134	1	2	2	1	300
Lakewood Hospital[1, 2]	Lakewood Ohio	B Wylie	OBG	3,566	1	2	3	2	200
St Rita's Hospital[1, 2]	Lima Ohio	V A. Noble	OB	2,143		1	2	2	225
Maumee Valley Hospital	Toledo Ohio	S D Zuker	OB	524		1	1	1	

Numerical and other references will be found on pages 414 to 416

12. OBSTETRICS AND GYNECOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Mercy Hospital[1-3]	Toledo, Ohio	R C King	OBG	2,964	5	1	3	2	250
St Vincent's Hospital[1-3]	Toledo, Ohio	J F Hillabrand	OBG	8 938	8	2	4	3	
Toledo Hospital[1 3]	Toledo, Ohio	O E Todd	OBG	2 466	2	1	3	3	200
St Elizabeth Hospital[1 3]	Youngstown, Ohio	P L Boyle	OBG	4,484	1	2	3	2	300
St Anthony Hospital	Oklahoma City	G Rogers	OBG	5,641	8	1	3	3	150
University of Oklahoma Hospitals									
University Hospitals[1-3]	Oklahoma City	M J Serwer—J Kelso	OBG	2,578	2	2	4	3	95
Wesley Hospital[1]	Oklahoma City	J W Records	OBG	3 257	4	1	2	2	250
St John's Hospital[1 3]	Tulsa, Okla	W C Lindstrom	OBG	5 666	2	1	2	2	150
Emanuel Hospital[1 3]	Portland Ore	C L Clancy	OBG	7,410	11	2	4	3	175
St Vincent's Hospital[1 3]	Portland, Ore	J O McCall, Jr	OB	2,527	2	1	1	1	175
University of Oregon Medical School Hospitals and Clinics[1 3]	Portland, Ore	H C Stearns	OBG	1,882	8	1	3	3	85
Abington Memorial Hospital[1 3]	Abington, Pa	R D Porter C M Turman	OBG	3,564	8		2	3	100
Allentown Hospital[1-3]	Allentown, Pa	F C Schaeffer	OBG	4 049	6	1	2	2	225
St Luke's Hospital[1 3]	Bethlehem, Pa	T E Schadt	OBG	2 812			8	2	275
Bryn Mawr Hospital[1 3]	Bryn Mawr, Pa	J L Richards	OBG	8,180		1	1	1	100
George F Geisinger Memorial Hospital and Clinic[1 3]	Danville Pa	R E Nicodemus	OB	1 530		2	2	1	125
Fitzgerald Mercy Hospital[1 3]	Darby, Pa	J V Missett, Jr	OBG	3 750		2	2	1	200
Harrisburg Hospital[1 3]	Harrisburg, Pa	W P Dailey	OBG	4,098		1	3	3	250
Albert Einstein Medical Center									
Northern Division[1 3]	Philadelphia	A H Marbach	GYN	2 074	8	1	2	2	200
Southern Division[1 3]	Philadelphia	C Wachs—A First	OBG	1 573	3	2	2	3	150
Episcopal Hospital[1 3]	Philadelphia	J H Dugger	OBG	2,743	2	1	3	3	100
Frankford Hospital[1-3]	Philadelphia	G C Hanna, Jr	OBG	3 063	1		1	2	300
Germantown Dispensary and Hospital[1 3]	Philadelphia	Z B Newton	OBG	4 348		1	2	2	150
Graduate Hospital of the University of Pennsylvania[1 3]	Philadelphia	R A Kimbrough	GYN	1,060	4	1	2	2	
Hahnemann Medical College and Hospital[1-3]	Philadelphia	N F Paxson	OBG	4,028	3	3	9	3	
Hospital of the University of Pennsylvania[1-3]	Philadelphia	C Bachman F Payne	OBG	5,573	28	6	16	3	
Hospital of the Woman's Medical College of Pennsylvania[1-3-465]	Philadelphia	A G Taylor M D Pettit	OBG	2,376		2	5	3	
Jefferson Medical College Hospital[1-3]	Philadelphia	T L Montgomery L C Scheffey	OBG	5 009	5	5	8	3	25
Lankenau Hospital[1 3]	Philadelphia	R B Wilson	OB	913		1	8	2	100
Methodist Episcopal Hospital[1-3]	Philadelphia	R W Mohler	OBG	1 808	2	1	3	2	200
Pennsylvania Hospital[1-3]	Philadelphia	R A Kimbrough	OBG	5 021	5	7	7	3	20
Philadelphia General Hospital[1-3]	Philadelphia	J C Ullery	OBG	6,458	4	8	9	3	113
Temple University Hospital[1 3]	Philadelphia	J R Willson	OBG	4,479	7	4	12	3	
Woman's Hospital[1-3]	Philadelphia	A G Taylor D Ashton	OBG	2,566		1	3	3	175
Mercy Hospital[1-3]	Pittsburgh	R A D Gillis— G J Carlin	OBG	3,370		1	8	3	175
Montefiore Hospital[1-3]	Pittsburgh	H Cohen	OB	1 994		1	1	1	100
Pittsburgh Hospital[1 3]	Pittsburgh	E A Conti	OBG	2,616	1	1	2	2	200
Pittsburgh Medical Center[1-3-201]	Pittsburgh	J A Hepp H A Power	OBG	8 999	5	4	12	3	125
St Francis Hospital[1-3]	Pittsburgh	J H Carroll J A Hepp	OBG	2,784	2	1	3	3	150
St Margaret Memorial Hospital[1]	Pittsburgh	R Tafel	OBG	1,325	1	1	1	2	175
South Side Hospital[1-3]	Pittsburgh	J A New J Hodkiss	OBG	2,338		1	2	1	250
Reading Hospital[1-3]	Reading Pa	F B Nugent	GYN	1 065	5	1	1	1	225
Providence Lying In Hospital[3]	Providence, R I	C S Houston	OB	8 702	32	2	2	1	110
Rhode Island Hospital[1-3]	Providence, R I	H C McDuff, Jr	GYN	1,228	6	1	2	2	60
Roper Hospital[1-3]	Charleston, S C	L A Wilson	OBG	3,371	8	2	7	3	83
Columbia Hospital[1-3]	Columbia, S C	F B C Geibel	OBG	3 442	8	1	2	3	250
McLeod Infirmary	Florence S C		OBG					1	
Greenville General Hospital[1-3]	Greenville, S C	J Parker	OBG	3 420	5	1	3	3	125
Baroness Erlanger Hospital[1-3]	Chattanooga, Tenn	H A Schwartz	OB	3 309		4	7	1	
Memorial Hospital[1-3]	Chattanooga, Tenn	C L Suggs Jr	OBG	1 878		1	1	1	250
Knoxville General Hospital	Knoxville, Tenn	H H Jenkins	OBG	2 152	2	1	1	2	153
Baptist Memorial Hospital[1-3-204]	Memphis, Tenn	H E Atherton	OBG	5 740	2	1	3	2	100
John Gaston Hospitals[1-3]	Memphis, Tenn	P Schrier	OBG	9,844	8	4	12	3	35
Methodist Hospital	Memphis, Tenn	C G Bringle	OB	4 022		1	1	2	100
St Joseph Hospital[1-3-204]	Memphis, Tenn	J J Redmon	OBG	4,019	1	1	8	3	
George W Hubbard Hospital of Meharry Medical College[1 3-316]	Nashville, Tenn	W F B James	OB	1,291		2	4	3	150
Mid State Baptist Hospital[1-3]	Nashville, Tenn	D S Bayer	OBG	3 620	1	2	5	3	175
Nashville General Hospital[1]	Nashville, Tenn	F E Whitacre	OBG	1 292		2	5	2	
St Thomas Hospital[1-3]	Nashville, Tenn	S C Cowan, Jr	OB	2,145	1	1	3	1	200
Vanderbilt University Hospital[1-3 207]	Nashville, Tenn	F E Whitacre	OBG	2 116	6	5	11	3	50
Brackenridge Hospital[1-3-400]	Austin, Texas	E K Blewett	OBG	2,772			1	1	250
Baylor University Hospital[1-3]	Dallas Texas	W K Strother	OBG	10,711	1	3	7	3	105
Methodist Hospital[1-3-271]	Dallas, Texas	J V Moody	OBG	5,418	2	2	4	3	125
Parkland Hospital[1-3]	Dallas, Texas	W F Mengert	OBG	3 983	4	5	10	3	125
St Paul's Hospital[1-3]	Dallas, Texas	O V Prejean	OBG	5 981	1	2	4	3	125
Hotel Dieu, Sister's Hospital[1-3]	El Paso, Texas	E C Bernell	OBG	1,668		1	2	2	150
Harris Hospital[1-3]	Fort Worth, Texas	N Bailey	OBG	6 167	1	1	3	1	300
University of Texas Medical Branch Hospitals[1 3-408]	Galveston Texas	W R Cooke	OBG	2 363	5	2	9	3	150
Hermann Hospital[1-3]	Houston, Texas	T G Grendy Jr A M Faris	OBG	8 897	6	2	6	3	100
Jefferson Davis Hospital[1]	Houston, Texas	H W Johnson	OBG	4,908	8	4	9	3	50
Methodist Hospital[1-3-275-276-278]	Houston, Texas	D V Wachsman J Wall	OBG	8,393	1	2	6	2	100
St Joseph's Hospital[1-3-276]	Houston, Texas	R A Johnston	OBG	9,684	3	2	6	3	100
University of Texas M D Anderson Hospital for Cancer Research[1-3-277-471]	Houston, Texas	J A Wall	GYN				3	1	
Baptist Memorial Hospital[1-3]	San Antonio, Texas	H C Sweet	OBG	5,886		1	3	3	150
Robert B Green Memorial Hospital[1-3]	San Antonio Texas	G G Passmore	OBG	1 946	3	1	2	3	125
Thomas D Dee Memorial Hospital[1-3-[illegible]88]	Ogden, Utah	V L Ward	OBG	3,863	1	2	6	2	250
Dr W H Groves Latter Day Saints Hospital[1-3]	Salt Lake City	M S Sanders	OBG	6,485	3	2	4	2	
Holy Cross Hospital[1-3 283]	Salt Lake City	L Smith	OBG	3 209	1	2	4	3	175
Salt Lake County General Hospital[1-3 478]	Salt Lake City	E G Holmstrom	OBG	1,091	1		6	3	125
Bishop DeGoesbriand Hospital[1-3-287]	Burlington, Vt	W J Slavin	OBG	1,243	1		1	1	
Mary Fletcher Hospital[1-3-310]	Burlington, Vt	J Van S Maeck	OBG	1,826	5	1	4	2	[illegible]
Alexandria Hospital[1-3]	Alexandria, Va	H Picot	OBG	8,533		2	2	1	250

Numerical and other references will be found on pages 414 to 416

12 OBSTETRICS AND GYNECOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
Arlington Hospital[1,3]	Arlington Va	J B Jacobs	OBG	2,233		1	1	1	150
University of Virginia Hospital[1,3]	Charlottesville Va	W N Thornton	OBG	2,934	9	2	8	3	50
Lynchberg General Hospital[1,3]	Lynchberg Va	J E Warren	OB	1,554	1	1	1	1	
Riverside Hospital	Newport News Va	W R Payne	OBG	3,253	1	2	2	1	250
De Paul Hospital[1,3]	Norfolk Va	J R Kight	OBG	3 403	2	2	4	3	200
Norfolk General Hospital[1,3]	Norfolk Va	B D Jones R B Nicholls	OBG	3,573	5	2	3	2	150
Johnston Willis Hospital[1,3]	Richmond Va	E Rucker	OB	1 766		1	1	1	250
Medical College of Virginia—Hospital Division[1,3]	Richmond Va	H H Ware Jr	OB	6,902	2	6	11	3	50
Doctors Hospital[1,3]	Seattle	P G Peterson	OBG	2 792	1	1	1	1	125
King County Hospital Unit No 1 (Harborview)	Seattle	R. R De Alvarez	OBG	1,584	12	2	4	3	110
Providence Hospital	Seattle	J Clancy	OBG	3 467		1	2	1	200
Swedish Hospital[1,3]	Seattle	G Thomas	OBG	4,267		2	4	2	
Virginia Mason Hospital[1,3]	Seattle	C D Kimball	OB	2,858	2	1	1	1	100
St Luke s Hospital[1,3,295]	Spokane Wash	R T Harsh	OBG	1,600	1	1	1	1	150
Memorial Hospital[1,3]	Charleston W Va	J L Crites	OBG	1,998		3	3	1	
St Mary s Hospital[1,3]	Huntington W Va	G A Ratcliff	OB	2,146	1	1	1	1	150
University Hospitals State of Wisconsin General Hospital[1]	Madison Wis	J W Harris	OBG	736	2	2	4	3	
Columbia Hospital[1,3]	Milwaukee	F J Stoddard	OB	1,111		1	1	1	195
Milwaukee County Hospital[1,3,295]	Milwaukee	R S Cron	OBG	2,119	15	2	4	3	208
Milwaukee Hospital[1,3]	Milwaukee	F J Hofmeister	OBG	7,503	26	1	4	3	150
Mount Sinai Hospital[1,3]	Milwaukee	B E Urdan	OBG	3,522		1	2	2	300
St Joseph s Hospital[1,3]	Milwaukee	G S Kilkenny	OBG	6,656	3	2	4	3	200
St Luke s Hospital[1,3]	Milwaukee	A Watts	OBG	8,248	2	2	4	2	275
St Mary s Hospital[1-3,85]	Milwaukee	D Werner J D Owen	OBG	2,389			3	2	200
Gorgas Hospital	Ancon C Z	I J Strumpf	OBG	1,573	9	1	3	2	
Kapiolani Maternity and Gynecological Hospital[1,3,302]	Honolulu T H.	C C McCorriston L G Bachman	OBG	4,519		1	4	2	100
Queen s Hospital[1,3]	Honolulu T H	R Y Sakimoto	OBG	3 786		2	5	2	125
St Francis Hospital[1,3,301]	Honolulu T H	K. S Tom	OBG	2,302	4	1	2	1	125
San Juan City Hospital[1,3]	San Juan P R	M. F Fuster	OBG	4,670	4	2	6	3	150

13 OCCUPATIONAL MEDICINE

The following service is approved by the Council on Medical Education and Hospitals
Hospitals 1 Assistant Residencies and Residencies 2

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
Saginaw General Hospital[1,3]	Saginaw Mich.	R. D Mudd	271	373 400	1	2	2	825

14 OPHTHALMOLOGY

The following services have been approved by the Council on Medical Education and Hospitals
Hospitals, 170 Assistant Residencies and Residencies, 598

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY								
Letterman Army Hospital[1,3,66]	San Francisco	H W Shreck.	278	10,822	1	3	3	
Army Medical Center[1,3,66,6]	Washington D C	J H King Jr	612	27 646	2	6	3	
Brooke Army Medical Center[3,66,250]	San Antonio Texas	K. E Hudson	695	12,886			3	
UNITED STATES NAVY								
U S Naval Hospital[1,3]	Oakland Calif	C D Riggs	357	5,202			3	
U S Naval Hospital[1]	San Diego Calif	S H Oliver	496	18,559	4	4	3	
U S Naval Hospital[1,2,3,4]	Bethesda Md	S J Ryan	258	4 467	2	2	3	
U S Naval Hospital[1]	St Albans N Y	A. C Hohn	170	6 419			1	
U S Naval Hospital[1,3]	Philadelphia	F Harbert			3	3	3	
UNITED STATES PUBLIC HEALTH SERVICE								
U S Public Health Service Hospital[1,3]	New Orleans	J B Peebles Jr	129	1,612		1	3	
U S Public Health Service Hospital[1]	Baltimore	W P Griffey	165	3 411	1	3	3	
U S Public Health Service Hospital[1,3]	Staten Island N Y	E B Thomas	304	4,885	1	3	3	
U S Public Health Service Hospital	Seattle	H E Halden III	128		1	2	3	
DEPARTMENT OF HEALTH, EDUCATION AND WELFARE								
Freedmen s Hospital[1,3]	Washington D C	E. Watson	43	2,045	1	1	3	
VETERANS ADMINISTRATION								
Veterans Admin Hospital[1,3]	Tuskegee Ala	H G Dwiggins	174	1 609	1	3	3	
Veterans Admin Hospital[1,3]	Long Beach, Calif	G C Struble	211	2,138	2	2	3	
Veterans Admin Hospital[1,3]	Los Angeles	C S Mumma	547	1,312	1	3	3	
Veterans Admin Hospital[1]	San Francisco	M Fine—D O Harrington	206	1,991	1	3	3	
Veterans Admin Hospital[1-72,6]	Atlanta Ga	F P Calhoun Jr	179		2	4	3	
Veterans Admin Research Hospital	Chicago	E Merz	(See Northwestern University Medical Center)					
Veterans Admin Hospital[1]	Hines Ill.	W A Mann	457	556		4	2	
Veterans Admin Hospital[1,3,366]	Wadsworth Kan	A. W McAlester III	161	303	1	2	3	
Veterans Admin Hospital[1,3,111]	Louisville Ky	D Townes	171	789	1	2	2	
Veterans Admin Hospital[1]	New Orleans	J H Allen	127	1	1	2	3	
Veterans Admin Hospital[1,3,122]	Fort Howard Md	M. E. Randolph	108	92		1	3	

Numerical and other references will be found on pages 414 to 416

14. OPHTHALMOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Veterans Admin Hospital[1-2-147]	Dearborn, Mich	A D Ruedeman	120	470		1	3	
Veterans Admin Hospital[1-2]	Minneapolis	E W Hansen	109	90	1	3	3	
Veterans Admin Hospital[1 2]	St Louis	H Rosenbaum	10	168		3	3	
Veterans Admin Hospital[1 2 177]	Brooklyn	M A Lasky	177		1	2	2	
Veterans Admin Hospital[2]	New York City (Bronx)	A G De Voe	277	8,245	1	3	3	
Veterans Admin Hospital[1 2]	Cleveland	J E L Keyes	327	2,600	1	2	2	
Veterans Admin Hospital[1]	Aspinwall, Pa	M F McCaslin	304		1	3	3	
Veterans Admin Hospital[1-2]	Memphis, Tenn	W F Klotz			1	2	3	
Veterans Admin Hospital[2 9]	Dallas, Texas	M Thomas	147	1	1	1	2	
Veterans Admin Hospital[1-2]	Houston, Texas	E L Goar	277	195	1	3	3	
Veterans Admin Hospital[1 2]	McKinney, Texas	S B Gostin	173		1	3	3	
Veterans Admin Hospital[1 2]	Richmond, Va	E W Perkins	340		1	3	3	
Veterans Admin Hospital[1]	Milwaukee	J B Hitz	342	2,119	1	3	3	
Jefferson Hillman Hospital[1 2 212]	Birmingham, Ala	A Callahan	1,130	1		5	2	
Arkansas Baptist Hospital[1 87]	Little Rock, Ark	R Cook	497		1	1	1	225
General Hospital of Fresno County[1-2]	Fresno, Calif	V C Snow	155	4 635	1	2	2	231
Los Angeles County General Hospital[1]	Los Angeles	W J Endres	972	22,070	4	4	2	200
Los Angeles Eye and Ear Hospital[1 2 31]	Los Angeles	O H Ellis	288	4,267	2	4	2	150
White Memorial Hospital[1 2]	Los Angeles	R J Schillinger	201	7,698	1	2	2	
Highland Alameda County Hospital[1-2]	Oakland, Calif	M Gump	173	4 174	1	1	3	105
San Diego County General Hospital[1 2]	San Diego, Calif	G P Lauren	89	3,055	1	1	2	
Green's Eye Hospital[1 2 42 330]	San Francisco	V V Suglian		26,760	2	3	2	100
Stanford University Hospitals[1 2]	San Francisco	A E Maumenee	878	9,844	1	3	3	80
University of California Hospital[1 2-40 41 300]	San Francisco	F C Cordes	874	1		4	3	87
Harbor General Hospital[1]	Torrance, Calif	S R. Irvine	163	6,021	1	2	2	200
University of Colorado Medical Center								
Colorado General Hospital[1 2]	Denver	R W Danielson	120	8,120	2	4	3	150
Denver General Hospital[1 2]	Denver	G A Filmer	80				3	
Grace New Haven Community Hospital[1 2]	New Haven, Conn	R. M Fasanella	412	6,865	1	3	3	50
District of Columbia General Hospital[1-2]	Washington, D C	R A Cox—E Cummings	95	3 737	1	2	2	100
Episcopal Eye Ear and Throat Hospital[2-336]	Washington, D C	H R Downey	1,632	28 769	2	6	3	150
Jackson Memorial Hospital[1-2]	Miami, Fla	K Whitmer	875	2 836	2	6	3	75
Grady Memorial Hospital[1-2]	Atlanta, Ga	F P Calhoun Jr	428	15,518	2	6	3	20
Chicago Eye Ear Nose and Throat Hospital[1 2]	Chicago	A A Stonehill	591	27 823	2	4	2	100
Cook County Hospital[1 2]	Chicago	J E Lebensohn	583	17,608	6	6	2	60
Illinois Eye and Ear Infirmary[1-2 84-91]	Chicago	W F Hughes, Jr	1,454	69,153	10	22	2	100
Mercy Hospital	Chicago	L G Hoffman	78		1	1	1	100
Michael Reese Hospital[1 2]	Chicago	T Zekman	770	4 454	2	3	2	75
Northwestern University Medical Center								
Chicago Wesley Memorial Hospital[1-2]	Chicago	W A Mann	340		1	2	3	60
Passavant Memorial Hospital[1 2]	Chicago	D Vail	555	1			2	50
Veterans Admin Research Hospital	Chicago	E Merz					1	
Presbyterian Hospital[1]	Chicago	I M Donegan	248	1	2	3	2	125
Provident Hospital[1 2]	Chicago	W M Jones		3,287	1	3	3	200
St Joseph Hospital[1-2 91]	Chicago	J Donegan	27		1	1	1	100
St Luke's Hospital[1-2]	Chicago	J Clark	279	1	1	2	2	60
University of Chicago Clinics[1-2]	Chicago	F W Newell	314	9 974	1	3	3	175
University of Illinois Research and Educational Hosps[1-86 91]	Chicago	W F Hughes Jr	105	7,822	1	2	3	110
Woodlawn Hospital[1-2]	Chicago	F M Whitsell	482		1	1	1	200
Evanston Hospital[1]	Evanston, Ill	G R Soper	112		1	1	1	
Indiana University Medical Center and Affiliated Hospitals[103]								
Indianapolis General Hospital[1]	Indianapolis	E W Dyar	223	1	1	2	2	300
Indiana University Medical Center[1]	Indianapolis	F M Wilson	280	4,893	3	9	2	165
University Hospitals[1-2]	Iowa City	A E Braley	1,328	3 948	2	6	3	75
University of Kansas Medical Center[1]	Kansas City Kan	A Lemoine Jr	521	5,047	2	3	2	125
Louisville General Hospital[1-2]	Louisville, Ky	C D Townes	190			2	2	100
Charity Hospital of Louisiana								
Independent Unit[1]	New Orleans	J H Larose	922	3 694	1	3	3	100
Louisiana State University Unit[1-2]	New Orleans	G M Haik	1,228	7,170	1	3	3	100
Tulane University Unit[1]	New Orleans	J H Allen	916	6 745	1	3	3	100
Eye, Ear and Throat Hospital[1-2]	New Orleans	C A Clapp	1 067	11 440	1	3	3	60
Touro Infirmary[1]	New Orleans	A L Braunstein	93		1	1	1	100
Baltimore Eye, Ear and Throat Charity Hospital[1-2-1-2]	Baltimore	P Renken	1,468	16,780		10	3	60
Johns Hopkins Hospital[1-2]	Baltimore	A C Woods	1,757	15 973		6	3	20
University Hospital[1-2]	Baltimore	F E Knowles, Jr	43	3 251	1	2	2	60
Boston City Hospital[1-2]	Boston	J J Regan	690	20,801		7	1	132
Massachusetts Eye and Ear Infirmary[1-2-188]	Boston	E B Dunphy	8,721	41 104	11	11	2	
Massachusetts Memorial Hospitals[1-2]	Boston	T Gundersen	288	5 105	2	2	2	100
University Hospital[1-2]	Ann Arbor, Mich	F B Fralick	628	11,849	4	11	3	140
Harper Hospital[1-2-147]	Detroit	A D Ruedemann	1,320		1	3	3	225
Henry Ford Hospital[1-2]	Detroit	J S Guyton	388	20,000	3	9	3	225
Receiving Hospital[1-2 140-288]	Detroit	A D Ruedemann	592	11,384		4	3	100
Wayne County General Hospital and Infirmary[1-2]	Eloise Mich	M M Musselman	173	2,527	1	3	3	287
Minneapolis General Hospital[1-2]	Minneapolis	W K Haven	174	2,098	1	2	3	182
University of Minnesota Hospitals[1 2]	Minneapolis	E Hansen	180		1	3	3	162
Mayo Foundation[1-2]	Rochester Minn	C W Rucker	672	37,553	5	17	3	150
Ancker Hospital[1-2]	St Paul	G Strate	105	3,735	1	1	3	181
Charles T Miller Hospital[1-150]	St Paul	E P Burch	534	3,499	1	3	3	190
St Louis County Hospital	Clayton, Mo	D Bisno	28		1	3	1	215
Kansas City General Hospital No 1[1-2]	Kansas City, Mo	W R Eubank	128	3 331	1	2	2	150
Barnes Hospital[1-2]	St Louis	B Becker	1,729		6	10	3	60
Homer G Phillips Hospital[1-2]	St Louis	L Post	154		2	6	3	133
St Louis City Hospital[1-2]	St Louis	D Bisno	100	5 833	1	2	2	137
St Mary's Group of Hospitals[1-2]	St Louis	R D Mattis	285	5,499	1	3	3	60
University of Nebraska Hospital	Omaha	J H Judd	117			2	3	
Medical Center Jersey City Hospital[1-2]	Jersey City, N J	F X Brophy	578		1	3	3	60
Newark Eye and Ear Infirmary[1-2]	Newark, N J	L W Hughes	1,324	7,143	2	2	1	125
Brooklyn Eye and Ear Hospital[1-2]	Brooklyn	W V Moore	8 245	45,476	4	3	2	100
Jewish Hospital[1-2]	Brooklyn	M Lasky	184	8,202	1	2	2	75
Kings County Hospital								
University Service[1-2]	Brooklyn	W Moehle	879	10,576	2	4	2	93
Long Island College Hospital[1-2]	Brooklyn	H F Schilback	213	3,104	1	2	2	
Buffalo General Hospital[1-2]	Buffalo	I J Koenig	388	1,883	1	1	2	150
Edward J Meyer Memorial Hospital[1-2-137]	Buffalo	I J Koenig	94		1	3	2	179
Millard Fillmore Hospital[1-2]	Buffalo	E B Hague	297		1	1	1	
Queens General Hospital[1-2]	Jamaica, N Y	T D'Angelo	200		1	2	2	93
Nassau Hospital[1-2]	Mineola, N Y	K Brown	589		1	1	3	170
Bellevue Hospital Center								
Division IV—New York University Post Graduate Medical School[1-2]	New York City	A G De Voe	412	17,000	4	10	3	60

Numerical and other references will be found on pages 414 to 416

14 OPHTHALMOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered ª	Total Residencies Offered ª	Length of Approved Program (Years)	Beginning Stipend (Month)
Beth Israel Hospital[1, 3]	New York City	M L Berliner	148	2 767	1	1	1	135
Bronx Eye and Ear Infirmary[3]	New York City	N Gold—S Epstein	951		1	2	2	100
Goldwater Memorial Hospital[1, 3]	New York City	S Fox	1,803	258	1	3	2	80
Harlem Eye and Ear Hospital[1-3]	New York City	P Muller	639	14,823	1	3	1	50
Lenox Hill Hospital[1, 3]	New York City	B Payne	357	4 431	1	2	3	180
Manhattan Eye Ear and Throat Hospital[1, 3]	New York City	R T Paton	2,902	56 004	5	10	2	
Metropolitan Hospital[1, 3]	New York City	C A Turtz	77	5,244	1	2	1	98
Montefiore Hospital[1, 3]	New York City	S Gartner	144	3,333		1	2	75
Mount Sinai Hospital[1, 3]	New York City	H Minsky	865	10,318	1	2	2	50
New York City Hospital[1, 3]	New York City	W R Loewe	155	5,242	1	2	2	93
New York Eye & Ear Infirmary[1, 3]	New York City	B F Payne	3,176	61 488	6	18	3	
New York Hospital[1-3]	New York City	J M McLean	631	12,009	2	4	3	34
New York Polyclinic Medical School and Hospital[1, 3]	New York City	H H Romaine	69	7 195	1	3	2	100
Presbyterian Hospital[1-3]	New York City	J H Dunnington	2 763	28,580	3	9	3	
St. Luke's Hospital[1, 3]	New York City	W G Frey Jr	258	5,864	1	2	2	75
St Mary's Hospital[1, 3]	Rochester N Y	O T Sullivan	439	1,248	1	1	2	
Strong Memorial Rochester Municipal Hospitals[1, 3]	Rochester N Y	J F Gipner	463			2	2	42
Sea View Hospital[1-3]	Staten Island N Y	S L Saltzman	1,532		1	1	1	150
State University of New York Medical Center[1]	Syracuse N Y	H Joy			1	2	2	191
Grasslands Hospital[1, 3]	Valhalla N Y	C Wood	118	5,006	1	3	3	150
North Carolina Memorial Hospital[1]	Chapel Hill N C	F C Winter	18		1	2	3	145
Duke Hospital[1, 3, 29-30]	Durham N C	W B Anderson	481	10 182	3	8	3	
McPherson Hospital[1, 2, 6]	Durham N C	F W Stocker	715	20,809	1	3	3	
North Carolina Baptist Hospital[1, 3]	Winston Salem N C	R W Roberts Jr	231	2,316	1	3	3	125
Cincinnati General Hospital[1, 3]	Cincinnati	D Lyle	292	8,273	2	4	2	
City Hospital[1, 3]	Cleveland	R J Nicholl	211	6 025		1	2	150
Cleveland Clinic Hospital[1-3]	Cleveland	R J Kennedy	363	18 476	2	6	3	175
St Luke's Hospital[1-3-44]	Cleveland	M W Jacoby	464	850	1	1	2	120
University Hospitals[1, 3]	Cleveland	L V Johnson	821	7 047	1	3	2	125
Ohio State University Hospitals University Hospital[1, 3]	Columbus Ohio	A M Culler	892	9,557	2	7	3	150
University Hospitals[1-3, 24]	Oklahoma City	J R Reed	370		1	3	2	95
University of Oregon Medical School Hospitals and Clinics[1, 3, 2-3]	Portland Ore	K C Swan	255	13,213	2	6	3	85
George F Geisinger Memorial Hospital[1, 3]	Danville Pa	C H Jacobs	321	7 473		2	2	150
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	E Spaeth	926	4,570	2	5	2	
Hospital of the University of Pennsylvania[1, 3]	Philadelphia	F H Adler	582	8,236	3	9	3	
Jefferson Medical College Hospital[1-3]	Philadelphia	A E Town	170	5,556	1	2	3	
Philadelphia General Hospital[1, 3]	Philadelphia	E J Donnelly	142		1	2	2	113
Temple University Hospital[1-3]	Philadelphia	G G Gibson	231	3 664	2	6	3	
Wills Eye Hospital[1, 3]	Philadelphia			93,821	6	12	2	
Montefiore Hospital[1, 3]	Pittsburgh	H. E Thorpe	362	1,945	1	3	3	100
Pittsburgh Medical Center[1-3]	Pittsburgh	M F McCaslin	2,261	8,309	1	5	3	125
Robert Packer Hospital[1, 3]	Sayre Pa	H D Rentschler	1,250	11,232	1	1	3	150
Roper Hospital[1, 3]	Charleston S C	P G Jenkins	794	1,863	1	2	2	83
John Gaston Hospitals[1, 3]	Memphis Tenn	P Lewis	238		2	2	2	85
Memphis Eye Ear Nose and Throat Hospital[3]	Memphis Tenn	P M Lewis	1,624	5 654	1	2	2	
Parkland Hospital[1-3]	Dallas Texas	C W Browning	116		1	3	2	125
University of Texas Medical Branch Hospitals[1, 3]	Galveston Texas	G Robertson	267	5 080		4	2	150
Jefferson Davis Hospital[1]	Houston Texas	E L Goar		5,838	1	2	2	50
Scott and White Memorial Hospitals[1, 8]	Temple Texas	E R. Veirs	213	2,260		1	2	250
University of Virginia Hospital[1, 3]	Charlottesville Va	E W Burton	417	3 690	1	3	3	50
Medical College of Virginia—Hospital Division[1, 3]	Richmond Va	D Guerry III	829	6,841	1	3	3	50
Gill Memorial Eye Ear & Throat Hospital[1, 3]	Roanoke Va	E G Gill	2,059		1	3	3	
King County Hospital Unit No 1 (Harborview)[1, 292]	Seattle	R. C Laughlin	81			1	2	130
University Hospitals State of Wisconsin General Hospital[1]	Madison Wis	F A Davis	500	3,586	1	3	3	
Milwaukee County Hospital[1-3]	Milwaukee	E F Carl	319	7 619	2	4	2	208
Gorgas Hospital[1, 3]	Ancon C Z	A. A. Albright	156	7 613	1	3	3	

15 ORTHOPEDIC SURGERY

Type of training acceptable to Board A—Adult orthopedics C—Children's orthopedics F—Fractures.

The following services have been approved by the Council and the American Board of Orthopedic Surgery through the Residency Review Committee for Orthopedic Surgery as offering acceptable training in adult orthopedics children's orthopedics and fractures Training in the basic sciences is given either as an integral part of these services or as a separate course Services collaborating in an integral plan of training are designated by a program number a list of which is found on page 379

Residents completing their training in these hospitals are eligible for full certification by the American Board of Orthopedic Surgery including children's orthopedic surgery

Hospitals 197, Assistant Residencies and Residencies 785

FEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered ª	Total Residencies Offered ª	Program Identification	Beginning Stipend (Month)
UNITED STATES ARMY									
Army Medical Center[1, 3, 60, 6]	Washington D C	E A Brav	ACF	1 471	3	3	9		
Brooke Army Medical Center[3-68, 250]	San Antonio Texas	J W Batch	ACF	2,103	2				
DEPARTMENT OF HEALTH EDUCATION AND WELFARE									
Freedmen's Hospital[1, 3]	Washington D C	J R Gladden	ACF	243	3		1		
VETERANS ADMINISTRATION									
Veterans Admin Hospital[1]	San Francisco	L C Abbott D E King	AF	259	3	1	4	2, 3	
Veterans Admin Hospital[1]	Hines Ill.	H A. Sofield	AF	1,524	10	3	10	50	
Veterans Admin Hospital[1, 3]	Indianapolis	G J Gareeau	AF	475	3		1	8	
Veterans Admin. Hospital[1]	Des Moines Iowa	D N Gilson	AF	1,272	3	1	3	55	
Veterans Admin Hospital[1, 3, 306]	Wadsworth Kan.	R L Diveley	AF	162	1	1	2	18	
Veterans Admin Hospital[1-3]	Louisville Ky	A. R Fischer	AF	574	2	2	5	9	
Veterans Admin Hospital[1]	New Orleans	R H Alldredge	AF	333		2	5	10	
Veterans Admin Hospital[1, 3]	Fort Howard Md	J P Miller	AF	229	1	2	8	46	
Veterans Admin Hospital[1, 3]	Boston (Jamaica Plain)	J S Barr	AF	953	3	2	6	13	

Numerical and other references will be found on pages 414 to 416

15 ORTHOPEDIC SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Program Identification	Beginning Stipend (Month)
Veterans Admin Hospital[1-3]	Minneapolis	E T Evans	AF	721	10	3	8	16	
Veterans Admin Hospital[1, 3]	Kansas City Mo	R L Diveley	AF	162	1	1	2	18	
Veterans Admin Hospital[1, 3]	Brooklyn	A I Schildhaus	AF	752	1	1	3	52	
Veterans Admin Hospital[1, 3]	Buffalo	W M Chardack	AF	550	3		1	24	
Veterans Admin Hospital[3, 206]	New York City (Bronx)	P D Wilson	AF	202	1	1	4	22	
Veterans Admin Hospital	Durham, N C	L J Cordrey	AF	599	2	1	3	10	
Veterans Admin Hospital[1, 3]	Cleveland	W H McGaw	AF	479	5	3	6	27	
Veterans Admin Hospital[1]	Oklahoma City	W K West	AF	309	2		1	53	
Veterans Admin Hospital[1, 3, 252]	Portland, Ore	H C Blair	AF	528	2	1	4	54	
Veterans Admin Hospital[3]	Columbia S C	J T Green	AF	417		1	3	45	
Veterans Admin Hospital[1, 3]	Memphis Tenn	D M Street	AF	1,298	2	4	10	1	
Veterans Admin Hospital	Dallas, Texas	L L Lankford	AF	300	1	1	4	47	
Veterans Admin Hospital[1, 3, 350]	Houston, Texas	B F Boylston	AF	882	10	1	5	49	
Veterans Admin Hospital	Salt Lake City	J A Gubler	A	401	2		1	34	
Veterans Admin Hospital[1, 3]	Richmond Va	R D Butterworth	AF	948	1	1	3	35	
Veterans Admin Hospital[1]	Milwaukee	P L Carnesale	AF	870	13	1	5	40	
Jefferson Hillman Hospital[1-3, 31]	Birmingham, Ala	J D Sherrill	ACF	1,028	4	1	6		
City Hospital	Mobile, Ala	W C Hannon	ACF	571	4	1	1		200
Arkansas Children's Home and Hospital[1]	Little Rock, Ark	S Thompson	C	490	1		7	1	
Los Angeles County General Hospital[1]	Los Angeles	J V Luck	ACF	3 447	46	2	15		200
Orthopaedic Hospital	Los Angeles	A Brockway	ACF	2 400	1	2	5		
Samuel Merritt Hospital[1]	Oakland Calif	H H Hitchcock	AF	1 287	8	2	2	2	170
Children's Hospital[1, 3]	San Francisco	L C Abbott	O	283			2	2	175
Franklin Hospital[1, 3]	San Francisco	L C Abbott	A	1,169	2	1	3	2	118
San Francisco Hospital									
Stanford University Service[1, 3]	San Francisco	F J Cox	AF	907			1	2, 3	175
University of California Service[1, 3]	San Francisco	E R Schottstaedt	AF	914			1	2, 3	175
Shriners Hospital for Crippled Children[3]	San Francisco	F C Bost	C	291				2	100
Stanford University Hospitals[1, 3]	San Francisco	D E King	AC	1,068		1	3	3	80
University of California Hospital[1-3]	San Francisco	L C Abbott	A	310	2		2	2	87
Children's Hospital[1, 3]	Denver	H O Hughes	O	702			2	4	
University of Colorado Medical Center									
Colorado General Hospital[1, 3, 27]	Denver	A Thomas	AF	308	7	1	3	4	150
Denver General Hospital[1-3, 22]	Denver	I E Hendryson	AF	189	1			4	
Hartford Hospital[1, 3]	Hartford, Conn	M M Pike	AF	1,203	7	1	1	5	75
Grace-New Haven Community Hospital[1-3]	New Haven, Conn	N M Shutkin	AF	879	12		2	5	50
Hospital of St Raphael[3]	New Haven, Conn	D S O Connor	AF	580	4	3	6	48	125
Newington Home and Hospital for Crippled Children[1, 3]	Newington, Conn	J W Larrabee	O	457			3	5	200
Alfred I duPont Institute of the Nemours Foundation[1-3]	Wilmington Del	A R Shands, Jr	C	216		2	2	19, 20	250
District of Columbia General Hospital[1, 3]	Washington, D C	M C Cobey I Neviaser	ACF	906	8	3	5		100
American Legion Hosp for Crippled Children[1-3]	St Petersburg Fla	R C Lonergan	C	688	1		1	7	160
Grady Memorial Hospital[1, 3]	Atlanta Ga	R P Kelly	ACF	678	4	3	9		
University Hospital[1-3]	Augusta Ga	P B Wright	ACF	878	2	1	4		160
Children's Memorial Hospital[1-3]	Chicago	C N Pease	C	127			1	7	75
Cook County Hospital[1, 3]	Chicago	F N Shapiro	ACF	617	7	4	4		60
Northwestern University Medical Center									
Chicago Wesley Memorial Hospital[1-3]	Chicago	E L Compere	AF	1,585	1	1	8	7	60
Passavant Memorial Hospital[1, 3]	Chicago	I Stack—E Hauser	A	649	1			7	60
St Elizabeth Hospital[3]	Chicago	C S Scuderi	F	782		1	1	7	150
Shriners Hospitals for Crippled Children[3]	Chicago	H A Sofield	O	283		3	3	50	33
University of Chicago Clinics[1-3]	Chicago	C H Hatcher	ACF	808	5	2	5		175
University of Illinois Research and Educational Hospitals[1-3]	Chicago	F A Chandler	ACF	708	6	2	6		110
Evanston Hospital[1]	Evanston Ill	V Turner	AF	848	1	1	1	7	
St Francis Hospital[1, 3]	Evanston, Ill	J J Fahey	AF	1,052	2	2	2	7	175
West Suburban Hospital	Oak Park, Ill	H A Sofield	AF	446	1	1	1	7, 33	225
Indianapolis General Hospital[1]	Indianapolis	L I Thomas	AF	885	13	2	4	8	200
Indiana University Medical Center[1]	Indianapolis	G J Garceau	ACF	955	8		6	8	215
St Vincent's Hospital[1]	Indianapolis	G J Garceau	AF	1 244	4	1	2	8	275
University Hospitals[1-3]	Iowa City	C B Larson	ACF	2 005	3	4	10	65	75
University of Kansas Medical Center[1]	Kansas City Kan	J B Weaver	ACF	514	4	1	3		125
Good Samaritan Hospital	Lexington, Ky	K Thompson	ACF	681	2	1	1	59	225
St Joseph Hospital[1-3]	Lexington Ky	M G Brown	ACF	742	4	1	3	59	230
Kosair Crippled Children Hospital[1-3, 32]	Louisville, Ky	M R Colbert	C	613	2	2	4	9	150
Louisville General Hospital[1-3]	Louisville, Ky	K A Fisher	AF	570	4		8	9	105
Charity Hospital of Louisiana[432]									
Louisiana State University Unit[1]	New Orleans	H T Simon	ACF	1,406	11	3	9		100
Tulane University Unit[1]	New Orleans	J K Wickstrom	ACF	1 504	10	4	13	10	100
Ochsner Foundation Hospital[1]	New Orleans	G A Caldwell	AF	220		2	4	56	200
Touro Infirmary[1]	New Orleans	R H Alldredge	ACF	1,013	4	1	3	10	100
Confederate Memorial Medical Center[1-3, 432]	Shreveport, La	T M Oxford	ACF	985	8	2	0		150
Baltimore City Hospitals[1-3]	Baltimore	A F Voshell	AF	964	8		1	58	125
Children's Hospital School[1]	Baltimore	G E Bennett	C	680	2	1	2	40, 57	
James Lawrence Kernan Hospital for Crippled Children[1-3]	Baltimore	A F Voshell	O	490			2	58	250
Johns Hopkins Hospital[1-3]	Baltimore	R A Robinson	AF	619	3		7	57	20
University Hospital[1, 3]	Baltimore	A F Voshell	AF	292	5	1	2	68	50
Boston City Hospital[1, 3]	Boston	R F Sullivan	AF	2,164	1		7	13, 60	132
Children's Medical Center[1-3]	Boston	W T Green	C	852		6	12	11	42
Lahey Clinic[1-3]	Boston	G E Haggart	A	848	1	2	4	66	150
Massachusetts General Hospital[1-3]	Boston	J S Barr	ACF	1,452		5	0	11	41 66
Peter Bent Brigham Hospital[1-3]	Boston	W T Green	AF				1	11	
Massachusetts Hospital School[1-3, 141]	Canton, Mass	P L Norton	CF				2	13 60	50
Shriners Hospital for Crippled Children[3]	Springfield, Mass	G den Hough, Jr	C	311	1	2	2	33 66	215
Worcester City Hospital[3]	Worcester, Mass	J Kelley	ACF	1,054	13	1	2		170
University Hospital[1-3]	Ann Arbor, Mich	C Badgley	ACF	1,218	5	4	9	12	200
Children's Hospital[1-3]	Detroit	F J Fischer	C	308			2	12	225
Harper Hospital[1-3]	Detroit	C W Peabody	A	872	4	2	2		225
Henry Ford Hospital[1-3]	Detroit	C L Mitchell	ACF	1 256	6		9	12	254
Receiving Hospital[1, 3]	Detroit	A Goetz	F	677	7		2		250
Blodgett Memorial Hospital[1, 3-146]	Grand Rapids, Mich	J T Hodgen	ACF	297	1	1	3		275
Borgess Hospital[1-3]	Kalamazoo, Mich	H Stryker	ACF	476	3	1	3	16	100
Shriners Hospital for Crippled Children[1-3]	Minneapolis	J D B Galloway	C	197		2	2	16	162
University of Minnesota Hospitals[1-3]	Minneapolis	W H Cole	A	187			2		150
Mayo Foundation[1-3]	Rochester Minn	R K Ghormley	ACF	5,500	8	9	25	16	100
Gillette State Hospital for Crippled Children[1, 3]	St Paul	C C Chatterton	C	906	1				150
Mississippi Baptist Hospital[1]	Jackson, Miss	T L Blake	ACF	1,239	1	1	9	18	125
Children's Mercy Hospital[1-3]	Kansas City, Mo	C L Francisco	C	213		1	1		

Numerical and other references will be found on pages 414 to 416

15 ORTHOPEDIC SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered[a]	Total Residencies Offered[a]	Program Identification	Beginning Stipend
Kansas City General Hospital No 1[1, 3]	Kansas City Mo	R L Diveley	AF	1 031	4	1	3	18	175
St Luke s Hospital[1, 3]	Kansas City Mo	R L Diveley	ACF	1 031	4	1	3	18	175
Barnes Hospital[1, 3]	St Louis	J A Key	ACF	1 069	5	1	5		50
St Mary s Group of Hospitals[1, 3]	St Louis	R M O Brien	ACF	651	4	2	6		65
University of Nebraska Hospital	Omaha	W R Hamsa	ACF	151	7	1	1		
Monmouth Memorial Hospital[1, 3]	Long Branch N J	B Halbstein	ACF	191	2	1	3		200
Hospital for Crippled Children[407]	Newark N J	H Kessler—T Nicola	AC	952			2		150
Carrie Tingley Hospital for Crippled Children[1, 3]	Truth or Consequences N Mex.	W L. Minear	C	1,339			3	7	150
Albany Hospital[1, 3]	Albany N Y	J W Ghormey	AF	692	2	1	3	42	75
House of St Giles the Cripple[1-3]	Brooklyn	M Cleveland	C	210			3	25 41	100
Kings County Hospital									
County Division[1, 3]	Brooklyn	C C Vitale	ACF	426		1	3		98
University Service[1, 3]	Brooklyn	R F Warren	ACF	257		1	3		98
Long Island College Hospital[1, 3]	Brooklyn	H C Fett Sr	AF	722	7	2	3	39	
St Charles Hospital and Orthopedic Clinic[1-3]	Brooklyn	H. C Fett	C	304		3	3	89 52	125
Buffalo General Hospital[1, 3]	Buffalo	F N Potts	AF	939	5	3	4	24	125
Children s Hospital[1, 3]	Buffalo	F N Potts	C	435	1		3	24	75
Meadowbrook Hospital[1]	Hempstead N Y	O C Hudson	F	1 774	21	1	2	88	225
Nassau Hospital[1, 3]	Mineola N Y	O C Hudson	AF	1,953		1	2	88	170
Bellevue Hospital Center Division IV—New York University Post-Graduate Medical School[1, 3]	New York City	W A L Thompson	ACF	1,205	2	4	12	51	65
Hospital for Joint Diseases[1, 3, 188]	New York City	J E Milgram	ACF	2 664	6	6	18		70
Hospital For Special Surgery[1, 3- 00]	New York City	P D Wilson	ACF	1,095	7	5	13	22	160
Metropolitan Hospital[1, 3]	New York City	M. J Wilson	AF	551	6	1	3	67	95
Mount Sinai Hospital[1, 3]	New York City	R K Lippmann	ACF	381	1	1	8		50
New York Polyclinic Medical School and Hospital[1, 3]	New York City	D M. Bosworth	F	237	2		1	26	100
Presbyterian Hospital (New York Orthopedic Dispensary and Hospital)[1, 3]	New York City	A DeF Smith	ACF	2,612	1	6	18		
St Luke s[1, 3]	New York City	D M Bosworth	ACF	830	5	1	3	41	75
St Charles Hospital	Port Jefferson N Y	F S Child	C	504		4	4	87 43	150
Rochester General Hospital[1, 3]	Rochester N Y	H B Crawford	A	716	3			31	
Strong Memorial Rochester Municipal Hospitals[1-3]	Rochester N Y	R P Schwartz	ACF	1 067		2	5	31	42
Ellis Hospital[1, 3]	Schenectady N Y		AC					42	
St Vincent s Hospital[1-3]	Staten Island N Y	D M Bosworth	F	509		1	1	26	150
Sea View Hospital[1, 3]	Staten Island N Y	D M. Bosworth	A	189		4	4	25	160
Rehabilitation Hospital[1, 3]	West Haverstraw N Y	J C McCauley Jr	AC	613	1	4	4	14 51	225
Charlotte Memorial Hospital[1, 3]	Charlotte N C	H Winkler	AF	1,517	4	1	2	48	200
Duke Hospital[1, 3]	Durham N C	L D Baker	ACF	745	1	6	17	19	250
Children s Hospital[1, 3]	Akron Ohio	F B Roberts	C	808		2	6	15	250
City Hospital[1, 3]	Akron Ohio	A. Davis	AF	1,264	4	1	4	15	235
Children s Hospital[1]	Cincinnati	J A Freiberg	C	361				17	
Cincinnati General Hospital[1, 3]	Cincinnati	J A Freiberg	AF	200	3	2	6	17	
Jewish Hospital[1, 3]	Cincinnati	J A Freiberg	A	666	3		1	17	165
Cleveland Clinic Hospital[1, 3]	Cleveland	J A. Dickson	ACF	810	3	2	8		175
University Hospitals[1, 3, 441]	Cleveland	C H Herndon	ACF	1,214	1		6		125
Ohio State University Hospitals									
Children s Hospital[1, 3]	Columbus Ohio	H B Lacey	C	495			3	25	
Mount Carmel Hospital[1]	Columbus Ohio	H B Lacey	AF	1,324	7	2	2	25	250
University Hospital[1-3]	Columbus Ohio	J D Wilson	AF				7	25	150
White Cross Hospital[1]	Columbus Ohio	J Q Brown	AF	968		1	3	25	825
Elyria Memorial Hospital[1-3]	Elyria Ohio	C H Heyman	C	189			1	27	270
St Vincent s Hospital[1-3]	Toledo Ohio	A L Berthon	ACF	1,341	4	1	2		225
Bone and Joint Hospital[3]	Oklahoma City	E D McBride	AF	1,865	4	1	5	53	200
St Anthony Hospital	Oklahoma City	W K West	A	1,340	1	1	1	53	150
University Hospitals[1, 3]	Oklahoma City	D H O'Donoghue	ACF	963	1	2	8	53	95
Emanuel Hospital[1, 3]	Portland Ore	E G Chuinard	AF	1,848	7	1	2	28	175
Shriners Hospital for Crippled Children[1, 3]	Portland Ore	L S Lucas	C	358			2	28	100
University of Oregon Medical School Hospitals and Clinics[1, 3, 5-3]	Portland Ore	L S Lucas	AF	575	10	2	8	28	85
George F Geisinger Memorial Hospital[1, 3]	Danville Pa	L F Bush	AF	665	2		1	6	125
State Hospital for Crippled Children[1]	Elizabethtown Pa	T Outland	C	808	1	3	3	21 56	217
Hamot Hospital[1, 3]	Erie Pa	C W Fortune	ACF	1 459	4	1	3		200
Children s Hospital[1, 3]	Philadelphia	J T Nicholson	C	188			2	23	75
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	J T Nicholson	A	232	1	1	1	23	75
Hospital of the University of Pennsylvania[1, 3]	Philadelphia	P Colonna	ACF	693	7	2	7	20	
Jefferson Medical College Hospital[1-3]	Philadelphia	A. F De Palma	AF	845	2	2	6	21	100
Pennsylvania Hospital[1, 3]	Philadelphia	J T Nicholson	F	138		1	1	23	20
Philadelphia General Hospital[1, 3]	Philadelphia	A F De Palma	ACF	701	9		6	23	118
Shriners Hospital for Crippled Children[1, 3, 452]	Philadelphia	J R Moore	C	271		1	8	29	75
Temple University Hospital[1-3]	Philadelphia	J R Moore	AF	1,249	7	1	8	29	
Allegheny General Hospital[1, 3]	Pittsburgh	P B Steele	ACF	1 161		1	1	30	
Children s Hospital[1, 3]	Pittsburgh	J S Donaldson A B Ferguson	C	429		2	5	30 6	58
Presbyterian Hospital[1, 3]	Pittsburgh	J S Donaldson	AF	459		1	3	30	125
St Francis Hospital[1-3]	Pittsburgh	C C Yount	A	835		1	1	30	200
Robert Packer Hospital[1, 3]	Sayre Pa	D Baker	ACF	793	5	1	3		150
Rhode Island Hospital[1, 3]	Providence R I	K G Burton	ACF	1,492	5	1	4		60
Roper Hospital[1, 3]	Charleston S C	J A Siegling	ACF	668		1	3	45	83
Columbia Hospital[1, 3]	Columbia S C	W A. Boyd	ACF	1 067	2	1	3		250
Greenville General Hospital[1, 3]	Greenville S C	F Stelling	AF	727	6		3	19	100
Shriners Hospitals for Crippled Children[1, 3]	Greenville S C	F H Stelling	C	874		2	3	19 48	100
St Mary s Memorial Hospital[1, 3]	Knoxville Tenn	T Bagwell	ACF	813	2	1	3		300
Campbell Clinic Hospital[3, 460]	Memphis Tenn	J S Speed	ACF	2 074	1	5	13		50
Vanderbilt University Hospital[1, 3]	Nashville Tenn	E M Regen	ACF	835			3		50
Baylor University Hospital[1, 3]	Dallas Texas	F Butte	A	1,930	2	2	6	32	165
Parkland Hospital[1, 3]	Dallas Texas	P M Girard	F	607	2	2	2	32	125
Texas Scottish Rite Hospital for Crippled Children[1, 3]	Dallas Texas	B Carrell	C	643		1	3	32 47	100
Hermann Hospital[1, 3]	Houston Texas	E T Smith	ACF	1 456	5	1	4		100
Jefferson Davis Hospital[1]	Houston Texas	F A. Bloom	ACF	676	7	1	2	49	50
Salt Lake County General Hospital[1, 3]	Salt Lake City	P B Price	F	114	4		1	34	125
Shriners Hospital for Crippled Children	Salt Lake City	P A Pemberton	C	219		2	2	34	
University of Virginia Hospital[1, 3, 4, 6]	Charlottesville Va	J H. Allan	ACF	818	2	3	6	14	50
Crippled Children s Hospital[1, 3]	Richmond Va	H. P Mauck	C	850		1	1	35	200
Medical College of Virginia—Hospital Division[1-3]	Richmond Va	H. P Mauck	AF	1,890	8	3	7	35	75
Children s Orthopedic Hospital[1, 3, 33]	Seattle	J F Le Cocq	C	653			2	36	100
King County Hospital Unit No 1 (Harborview)[1]	Seattle	R D Ray	AF	372	7	1	2	37	110
Providence Hospital[1, 3]	Seattle	B E McConville	A	1,927	3	1	1	37	200
Shriners Hospital for Crippled Children[1, 310]	Spokane Wash	N R Brown	C	220	2		1	54	

Numerical and other references will be found on pages 414 to 416

15 ORTHOPEDIC SURGERY—Continued

FEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered	Total Residencies Offered	Program Identification	Beginning Stipend (Month)
University Hospitals									
State of Wisconsin General Hospital [1]	Madison Wis	R E Burns	ACF	1,060	86	8	7		
Columbia Hospital [1, 3]	Milwaukee	A O Schmidt	AF	826	10	1	8	37	105
Milwaukee Children's Hospital [1]	Milwaukee	W P Blount	C	401	1			37, 40	
Shriners Hospital for Crippled Children [270]	Honolulu, T H	J W White	C	175		1	1	60	100

The following services have been approved by the Council and the American Board of Orthopedic Surgery, through the Residency Review Committee for Orthopedic Surgery, as offering acceptable training in adult orthopedics and fractures Training in the basic sciences is given as an integral part of these services or as a separate course Services collaborating in an integral plan of training are designated by a program number, a list of which is found on page 379

Residents completing their training in these hospitals are eligible for limited certification by the American Board of Orthopedic Surgery, not to include children's orthopedic surgery

Hospitals, 38, Assistant Residencies and Residencies, 98

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered	Total Residencies Offered	Program Identification	Beginning Stipend (Month)
UNITED STATES ARMY									
Letterman Army Hospital [1-3, 66]	San Francisco	J D Blair	AF	2,109		8	9		
Fitzsimons Army Hospitals [1-66]	Denver	C N Rylander	AF	1,183	2				
UNITED STATES AIR FORCE									
U S Air Force Base Hospital [1-3]	San Antonio, Texas	H E Block	AF	912	1	2	2		
UNITED STATES NAVY									
U S Naval Hospital [1-3]	Oakland, Calif	F P Kreuz, Jr	AF	1,483	1				
U S Naval Hospital [1, 3]	Bethesda Md	C R Carr	AF	1,415	1	2	2		
U S Naval Hospital [1]	Chelsea, Mass	C F Morrison	AF	289			2		
U S Naval Hospital [1]	St Albans N Y	H A Markowitz	AF	959					
U S Naval Hospital [1-3]	Philadelphia	G C Beattie	AF	1,006		2	3		
U S Naval Hospital [1, 3]	Portsmouth, Va	C A Stevenson	AF	2,141		1	1		
VETERANS ADMINISTRATION									
Veterans Admin Hospital [1-3-293]	Long Beach Calif	R H Hall	AF	451	6	5	5	60	
Veterans Admin Hospital [1-3]	Los Angeles	R Mazet Jr	AF	1,117	13	3	8		
Veterans Admin Hospital [1-3, 49]	Denver	M E Gibbens	AF	980		1	2		
Veterans Admin Hospital [1-3]	Boston (Jamaica Plain)	J S Barr	AF	903	8	2	6	13	
Veterans Admin Hospital	St Louis	O P Hampton Jr	AF	18			2		
Veterans Admin Hospital [1-3]	Lincoln Neb	J E M Thomson	AF	470		1	3		
Veterans Admin Hospital [1-3]	McKinney, Texas	V M Bryant	AF	892	2	2	6		
NONFEDERAL									
Lloyd Noland Hospital [1, 3-318]	Fairfield, Ala	C L Yelton	AF	825		1	3		225
White Memorial Hospital [1-3-323]	Los Angeles	T G Reynolds	AF	408	2	1	3		
San Diego County General Hospital [1-3]	San Diego Calif	F E West	AF	447	2	1	2		
St Joseph's Hospital [1-3]	San Francisco	R Soto Hall	AF	921	7	1	3		150
St Mary's Hospital [1-3]	San Francisco	J J Loutzenheiser	AF	1,480		1	2		150
St Luke's Hospital [1-3]	Chicago	O Lambert	AF	506	2	1	2		60
Methodist Hospital [1-3]	Indianapolis	G Batman	AF	1,049	3	1	2		273
Massachusetts Memorial Hospital [1-3]	Boston	K Christophe	A	256	3	1	1		100
Lynn Hospital [1, 3]	Lynn Mass	D M Killoran	F	956	2	1	1	61	150
Jewish Hospital [1-3]	Brooklyn	M T Koven	AF	515	3	1	2		75
Methodist Hospital [1-3]	Brooklyn	H P Lange	AF	305	3	1	1		75
Edward J Meyer Memorial Hospital [1-3]	Buffalo	J P Cole	AF	137	2	1	2		170
Queens General Hospital [1-3]	Jamaica, N Y	F C Courten	AF	169	8	2	3		93
Lenox Hill Hospital [1-3]	New York City	W Galland	AF	654	2	1	1		160
North Carolina Orthopaedic Hospital [3]	Gastonia, N C	W McK Roberts	AF	805		3	3	19	
North Carolina Baptist Hospital [1-3]	Winston Salem, N C	H F Forsyth	AF	401	2	1	2		175
St. Luke's Hospital [1-3]	Cleveland	W H McGaw	AF	1,026	2	1	4		120
Youngstown Hospital [1-3]	Youngstown Ohio	W D McElroy	AF	936	5	1	2		125
Hahnemann Medical College and Hospital [1-3]	Philadelphia	E O Geckeler	AF	911	5	1	3		
University of Texas Medical Branch Hospitals [1-3]	Galveston Texas	G W N Eggers	AF	549	2		4		160
St Joseph's Infirmary [1-3]	Houston, Texas	F F Parrish	AF	491		1	1		225
Scott and White Memorial Hospitals [1-3-472]	Temple, Texas	R A Murray	AF	610		1	1		250

The following services are approved by the Council and the American Board of Orthopedic Surgery, through the Residency Review Committee for Orthopedic Surgery, as offering acceptable training in one or more but not all categories of orthopedic surgery Hospitals included in this list are urged to develop a full three year program, either independently or in collaboration with other institutions in order to assure applicants for appointment of an opportunity for completing their training with progressive graded responsibility

Hospitals, 27, Assistant Residencies and Residencies, 46

FEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered	Total Residencies Offered	Program Identification	Beginning Stipend (Month)
UNITED STATES NAVY									
U S Naval Hospital [1]	San Diego, Calif	W R Miller	AF	2,385	5	2	2		
VETERANS ADMINISTRATION									
Veterans Admin Hospital [1-3]	Dearborn, Mich	A G Goetz	A	850	3	1	1		
NONFEDERAL									
Children's Hospital [1-2]	Los Angeles	J C Wilson	C	303	8		2	60	200
Highland Alameda County Hospital [1-3]	Oakland, Calif	L Barnard	AF	686	7	1	2		185
Santa Clara County Hospital [1]	San Jose, Calif	H G Waters	AF	90			1		200
Sonoma County Hospital [1]	Santa Rosa, Calif	R D Robbins	A	228	6	1	1		425
Hope Haven Hospital [1-3]	Jacksonville, Fla	F L Fort	C			1	1		
Jackson Memorial Hospital [1-3]	Miami, Fla	E W Culliphor	ACF	1,734	14	2	6		75
Scottish Rite Hospital for Crippled Children	Decatur, Ga	J H Kite	C	313		1	1		200
Emory University Hospital [1-3]	Emory University, Ga	R P Kelly	C	740	2		3		190
Alexian Brothers Hospital [3]	Chicago	L Miller	F	875	2	1	1		125
Illinois Masonic Hospital [1-3]	Chicago	W R Fischer	AF			1	1		115
Michael Reese Hospital [1-3]	Chicago	S Sideman	AC	1,001	1	1	3		50
St Francis Hospital [1-3]	Peoria, Ill	H E Cooper	ACF	1,088	5	1	2		225
Iowa Methodist Hospital [1-3]	Des Moines, Iowa	D N Gibson	AF	584	3	1	1		150
Mercy Hospital [1-3]	Iowa City	A Steindler	A	696	1	1	2		150
St Francis Hospital [1-3]	Wichita, Kan	J Lance	A	1,011	2	1	1		275
St Louis City Hospital [1-3]	St Louis	E Holscher I Horwitz	F	924	2	1	2		137
Shriners Hospital for Crippled Children	St Louis	C H Crego, Jr	C	468	1		2		200
Nebraska Orthopedic Hospital [1]	Lincoln, Neb	H W Orr	C	780	5	1	1		150
New Jersey Orthopaedic Hospital [3]	Orange, N J	H W Smith	AC	686		1	2	80	170
Orange Memorial Hospital [1-3]	Orange, N J	H Briggs	F	448		1	1	80	125
Orthopaedic Hospital & Dispensary [1-3]	Trenton, N J	R B Ernest	A	669		1	1		200
Mount Sinai Hospital [1-3]	Cleveland	R S Reich	AF	1,546	8	1	2		215
Reading Hospital [1-3]	Reading, Pa	E J Morrissey	AF	682	10	1	1		225
Baroness Erlanger Hospital [1-3]	Chattanooga, Tenn	J J Killeffer	AF	1,162	5	1	2		
Primary Children's Hospital	Salt Lake City	P R Milligan	C	210		1	1		200

Numerical and other references will be found on pages 414 to 416

ORTHOPEDIC SURGERY—PROGRAM IDENTIFICATION

Program Number	Hospital	Location
1.	Veterans Admin Hospital	Memphis Tenn
	Arkansas Children's Home and Hospital	Little Rock Ark.
	Samuel Merritt Hospital	Oakland Calif
2.	Veterans Admin Hospital	San Francisco
	Children's Hospital	San Francisco
	Franklin Hospital	San Francisco
	San Francisco Hospital	San Francisco
	Shriners Hospital for Crippled Children	San Francisco
	University of California Hospital	San Francisco
3	Veterans Admin Hospital	San Francisco
	San Francisco Hospital	San Francisco
	Stanford University Hospital	San Francisco
4	Children's Hospital	Denver
	Colorado General Hospital	Denver
	Denver General Hospital	Denver
5.	Hartford Hospital	Hartford Conn.
	Grace-New Haven Community Hospital	New Haven Conn
	Newington Home and Hospital for Crippled Children	Newington Conn.
6.	George F Geisinger Memorial Hospital	Danville Pa
	Children's Hospital	Pittsburgh
7	American Legion Hospital for Crippled Children	St Petersburg Fla
	Chicago Wesley Memorial Hospital	Chicago
	Children's Memorial Hospital	Chicago
	Passavant Memorial Hospital	Chicago
	St Elizabeth Hospital	Chicago
	Veterans Admin Research Hospital	*Chicago*
	Evanston Hospital	Evanston Ill.
	St. Francis Hospital	Evanston Ill.
	West Suburban Hospital	Oak Park Ill
	Carrie Tingley Hospital for Crippled Children	Truth or Consequences N Mex.
8.	Veterans Admin. Hospital	Indianapolis
	Indianapolis General Hospital	Indianapolis
	Indiana University Medical Center	Indianapolis
	St Vincent's Hospital	Indianapolis
9	Veterans Admin Hospital	Louisville Ky
	Kosair Crippled Children Hospital	Louisville Ky
	Louisville General Hospital.	Louisville Ky
10	Veterans Admin Hospital	New Orleans
	Charity Hospital of Louisiana Tulane University Unit	New Orleans
	Touro Infirmary	New Orleans
11.	Children's Hospital	Boston
	Massachusetts General Hospital	Boston
	Peter Bent Brigham Hospital	Boston
12.	Children's Hospital	Detroit
	Harper Hospital	Detroit
	Receiving Hospital	Detroit
13.	Veterans Admin Hospital	Boston
	Boston City Hospital	Boston
	Massachusetts Hospital School	Canton Mass
14.	Rehabilitation Hospital	West Haverstraw N Y
	University of Virginia Hospital	Charlottesville Va
15	Children's Hospital	Akron Ohio
	City Hospital	Akron Ohio
16	Veterans Admin. Hospital	Minneapolis
	Shriners Hospital for Crippled Children	Minneapolis
	University of Minnesota Hospitals	Minneapolis
	Gillette State Hospital for Crippled Children	St Paul
17	Children's Hospital	Cincinnati
	Cincinnati General Hospital	Cincinnati
	Jewish Hospital	Cincinnati
18.	Veterans Admin Hospital	Wadsworth Kan.
	Children's Mercy Hospital	Kansas City Mo
	Kansas City General Hospital No 1	Kansas City Mo
	St Luke's Hospital	Kansas City Mo
	Veterans Admin Hospital	Kansas City Mo
19	Alfred I. du Pont Institute of the Nemours Foundation	Wilmington Del.
	Duke Hospital	Durham N C
	Veterans Admin. Hospital	Durham N C
	North Carolina Orthopaedic Hospital	Gastonia N C
	Greenville General Hospital	Greenville S C
	Shriners Hospital for Crippled Children	Greenville S C
20	Alfred I du Pont Institute of the Nemours Foundation	Wilmington Del.
	Hospital of the University of Pennsylvania	Philadelphia
21	State Hospital for Crippled Children	Elizabethtown Pa
	Jefferson Medical College Hospital	Philadelphia
22.	Veterans Admin Hospital	New York City
	Hospital for Special Surgery	New York City
23.	Children's Hospital	Philadelphia
	Graduate Hospital of the University of Pennsylvania	Philadelphia
	Pennsylvania Hospital	Philadelphia
	Philadelphia General Hospital	Philadelphia
24	Veterans Admin Hospital	Buffalo
	Buffalo General Hospital	Buffalo
	Children's Hospital	Buffalo
25.	Children's Hospital	Columbus Ohio
	Mount Carmel Hospital	Columbus Ohio
	Ohio State University Hospitals University Hospital	Columbus Ohio
	White Cross Hospital	Columbus Ohio
26.	House of St Giles the Cripple	Brooklyn
	New York Polyclinic Medical School and Hospital	New York City
	St. Vincent's Hospital	Staten Island N Y
	Seaview Hospital	Staten Island N Y
27	Veterans Admin Hospital	Cleveland
	Elyria Memorial Hospital	Elyria Ohio
28	Emanuel Hospital	Portland Ore
	Shriners Hospital for Crippled Children	Portland Ore
	University of Oregon Medical School Hospitals and Clinics	Portland Ore
29	Shriners Hospital for Crippled Children	Philadelphia
	Temple University Hospital	Philadelphia
30	Allegheny General Hospital	Pittsburgh
	Children's Hospital	Pittsburgh
	Presbyterian Hospital	Pittsburgh
	St Francis Hospital	Pittsburgh
31	Rochester General Hospital	Rochester N Y
	Strong Memorial Rochester Municipal Hospitals	Rochester N Y
32.	Baylor University Hospital	Dallas Texas
	Parkland Hospital	Dallas Texas
	Texas Scottish Rite Hospital for Crippled Children	Dallas Texas
33	West Suburban Hospital	Oak Park Ill
	Shriners Hospital for Crippled Children	Springfield Mass
34	Veterans Admin Hospital	Salt Lake City
	Salt Lake County General Hospital	Salt Lake City
	Shriners Hospital for Crippled Children	Salt Lake City
35	Veterans Admin Hospital	Richmond Va
	Crippled Children's Hospital	Richmond Va
	Medical College of Virginia Hospital Division	Richmond Va
36	Children's Orthopedic Hospital	Seattle
	King County Hospital, Unit No 1 (Harborview)	Seattle
	Providence Hospital	Seattle
37	Columbia Hospital	Milwaukee
	Milwaukee Children's Hospital	Milwaukee
38	Meadowbrook Hospital	Hempstead N Y
	Nassau Hospital	Mineola N Y
	St Charles Hospital for Crippled Children	Port Jefferson N Y
39	Long Island College Hospital	Brooklyn
	St Charles Hospital Orthopedic Clinic	Brooklyn
40	Veterans Admin Hospital	Milwaukee
	Milwaukee Children's Hospital	Milwaukee
41.	House of St Giles the Cripple	Brooklyn
	St. Luke's Hospital	New York City
42	Albany Hospital	Albany N Y
	Ellis Hospital and Eastern New York Orthopedic Hospital School	Schenectady N Y
43	Hospital of St Raphael	New Haven Conn.
	St Charles Hospital for Crippled Children	Port Jefferson N Y
45	Veterans Admin. Hospital	Columbia S C
	Roper Hospital	Charleston S C
46	Veterans Admin Hospital	Fort Howard Md.
	Children's Hospital School.	Baltimore
47	Veterans Admin Hospital	Dallas Texas
	Texas Scottish Rite Hospital for Crippled Children	Dallas Texas
48	Charlotte Memorial Hospital	Charlotte N C
	Shriners Hospital for Crippled Children	Greenville S C
49	Veterans Admin Hospital	Houston Tex.
	Jefferson Davis Hospital	Houston Tex
50	Veterans Admin Hospital	Hines Ill.
	Shriners Hospital for Crippled Children	Chicago
	Shriners Hospital for Crippled Children	Honolulu T H.
51	Bellevue Hospital Center Division IV—New York University Postgraduate Med. School	New York City
	Rehabilitation Hospital	West Haverstraw N Y
52	Veterans Admin Hospital	Brooklyn
	St. Charles Hospital Orthopedic Clinic	Brooklyn
53	Veterans Admin Hospital	Oklahoma City
	Bone and Joint Hospital	Oklahoma City
	St Anthony Hospital	Oklahoma City
	University Hospitals	Oklahoma City
54	Veterans Admin Hospital	Portland Ore
	Shriners Hospital for Crippled Children	Spokane Wash.
55	Veterans Admin Hospital	Des Moines Iowa
	University Hospitals	Iowa City
56	Ochsner Foundation Hospital	New Orleans
	State Hospital for Crippled Children	Elizabethtown Pa
57	Children's Hospital School	Baltimore
	Johns Hopkins Hospital	Baltimore
58	Baltimore City Hospital	Baltimore
	James Lawrence Kernan Hospital for Crippled Children	Baltimore
	University Hospital	Baltimore
59	Good Samaritan Hospital	Lexington Ky
	St. Joseph's Hospital	Lexington Ky
60	Veterans Admin Hospital.	Long Beach Calif
	Children's Hospital	Los Angeles
61	Massachusetts Memorial Hospital	Boston
	Lynn Hospital	Lynn Mass
66	Boston City Hospital	Boston
	Lahey Clinic	Boston
	Massachusetts Hospital School	Canton Mass
	Shriners Hospital for Crippled Children	Springfield Mass.
67	Hospital for Crippled Children	New York City
	Metropolitan Hospital	New York City
80	New Jersey Orthopaedic Hospital.	Orange N J
	Orange Memorial Hospital.	Orange N J

16 OTOLARYNGOLOGY

The following services have been approved by the Council and the American Board of Otolaryngology, through the Residency Review Committee for Otolaryngology, as offering acceptable training in the specialty

Hospitals, 107, Assistant Residencies and Residencies, 395

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
FEDERAL							
UNITED STATES ARMY							
Letterman Army Hospital[1,3,66]	San Francisco	B G McKibben	1,185	6,710	1	2	
Army Medical Center[1,3,66,67]	Washington D C	F L Spann	1,449	4,554	2	6	
Brooke Army Medical Center[3,66,250]	San Antonio, Texas	R P Rea	726	13,089			
UNITED STATES NAVY							
U S Naval Hospital[1,3]	Oakland, Calif	C D Riggs	857	8,001			
U S Naval Hospital[1]	San Diego Calif	S H Oliver	2,036	14,707	1	1	
U S Naval Hospital[1-3]	Bethesda Md	S J Ryan	1,240	4,164	2	2	
U S Naval Hospital[1,3]	Philadelphia	F Harbert	1,066	11,002	2	2	
VETERANS ADMINISTRATION							
Veterans Admin Hospital[1,3]	Little Rock, Ark	P L Mahoney	235		2	2	
Veterans Admin Hospital[1,3]	Long Beach Calif	A Swirsky	267	3,691	2	2	
Veterans Admin Hospital[1-3]	Los Angeles	C S Mumma	745	1,299	1	3	
Veterans Admin Hospital[1]	San Francisco	W P Work	338	2,484	1	3	
Veterans Admin Hospital[1,3]	Washington, D C	J G Lee	65	3	1	4	
Veterans Admin Hospital[1-3]	Atlanta, Ga	L A Brown	210	3			
Veterans Admin Hospital[1]	Hines Ill	F L Lederer	381	243	2	3	
Veterans Admin Hospital[1,3]	Wadsworth Kan	N E Lacy	143	139	1	1	
Veterans Admin Hospital[1,3,111]	Louisville, Ky	H Oppenheim	219	681	1	2	
Veterans Admin Hospital[1,3]	Boston (Jamaica Plain)	E H Tomb	572	3,497	1	3	
Veterans Admin Hospital[1,3]	Minneapolis	H V Hanson	242	154	1	2	
Veterans Admin Hospital[1,3]	St Louis	E H Lyman	11	229		3	
Veterans Admin Hospital[3]	New York City (Bronx)	D H Jones	832	4,024	2	3	
Veterans Admin Hospital[1,3]	Cleveland	V M Jordan	510	1,577	1	2	
Veterans Admin Hospital[1]	Aspinwall Pa	S L Kyler	373	9	1	3	
Veterans Admin Hospital[1,3]	Memphis, Tenn	T C Maguda	568	6	1	2	
Veterans Admin Hospital	Houston, Texas	J W Morris	140	1	2	3	
Veterans Admin Hospital[1,3]	Dallas, Texas	H H Harris	367	95	1	3	
Veterans Admin Hospital[1,3]	McKinney Texas	D A Corgill	269	3	1	3	
Veterans Admin Hospital[1]	Milwaukee	G D Straus	844	1,697	1	3	
NONFEDERAL							
Los Angeles County General Hospital[1]	Los Angeles	A H Miller	1,888	19,592	3	5	200
Los Angeles Eye and Ear Hospital[1,3,31]	Los Angeles	A H Miller	1,914	8,634	2	4	150
White Memorial Hospital[1-3]	Los Angeles	L R House	938	5,495	1	2	
Stanford University Hospitals[1,3]	San Francisco	R C McNaught	571	6,862		2	80
University of California Hospital[1,3,10,11]	San Francisco	L F Morrison	430			2	87
University of Colorado Medical Center							
Colorado General Hospital[1,3]	Denver	H L Hickey	188	3,532	1	2	150
Denver General Hospital[1,3]	Denver	H L Hickey	182	1			
Grace New Haven Community Hospital[1-3]	New Haven, Conn	J A Kirchner	817	4,193	1	3	50
District of Columbia General Hospital[1,3]	Washington, D C	V Alfaro					
		D Moffett	292	2,140	1	2	100
Episcopal Eye Ear and Throat Hospital[3,3]	Washington D C	D B Moffett	4,674	18,032	2	6	150
Tampa Municipal Hospital[1,3]	Tampa, Fla	J B Farrior	715			1	125
Grady Memorial Hospital[1,3]	Atlanta, Ga	W C Warren	33	78	1	3	20
Cook County Hospital[1,3]	Chicago	S J Pearlman	924	12,123	5	5	50
Illinois Eye and Ear Infirmary[1,3,84,91]	Chicago	F L Lederer	1,055	34,530	4	14	100
Northwestern University Medical Center[440]							
Chicago Wesley Memorial Hospital[1-3]	Chicago	G E Shambaugh, Jr	1,035	3,100	3	9	50
Presbyterian Hospital[1]	Chicago	S A Friedberg	685	2	1	2	125
University of Chicago Clinics[1,3]	Chicago	J R Lindsay	552	9,608	1	3	175
University of Illinois Research and Educational Hosps[1-86-91]	Chicago	F L Lederer	438	9,187	1	2	110
Indianapolis General Hospital[1-102]	Indianapolis	D E Brown	625	1	1	3	300
Indiana University Medical Center[1-102,281]	Indianapolis	M Manion	388	2,442	1	4	165
University Hospitals[1-3]	Iowa City	D M Lierle	1,981	4,447	4	12	75
University of Kansas Medical Center[1]	Kansas City, Kan	G O Proud	681	6,493	1	2	125
University of Louisville Hospitals[1-3]	Louisville, Ky	W C Wolfe	43			1	167
Charity Hospital of Louisiana							
Louisiana State University Unit[1]	New Orleans	V H Fuchs		6,836	1	3	100
Tulane University Unit[1]	New Orleans	J W McLaurin		6,234	1	3	100
Eye Ear, Nose and Throat Hospital[1-3]	New Orleans	W A Wagner	4,181	12,442	2	6	85
Baltimore Eye, Ear and Throat Charity Hospital[1-3]	Baltimore	T R O Rourk	3,780	10,260	1	3	50
Johns Hopkins Hospital[1-3]	Baltimore	J E Bordley	1,157	9,331		5	20
University Hospital[1-3]	Baltimore	T R O Rourk	400	1,858		3	60
Boston City Hospital[1,3]	Boston	C R Mills	1,950	12,403	3	6	112
Massachusetts Eye and Ear Infirmary[1-3-188]	Boston	L A Schall	3,069	21,140	10	10	
University Hospital[1,3]	Ann Arbor Mich	A C Furstenberg	664	9,014	2	8	140
Harper Hospital[1,3,356]	Detroit	W Warren	3,759	3	1	3	225
Henry Ford Hospital[1-3]	Detroit	J L Dill	993		1	4	225
Receiving Hospital[1,3]	Detroit	J E Croushore	429	4,117	1	2	254
University of Minnesota Hospitals[1,3,156]	Minneapolis	L R Boles	205	1	1	2	162
Mayo Foundation[1-3]	Rochester, Minn	H L Williams	958	26,022	2	8	150
Homer G Phillips Hospital[1-3]	St Louis	A J Cone	178	2	2	6	137 75
St Mary s Group of Hospitals[1,3]	St Louis	B J McMahon	555	2,955	1	3	65
Washington University Hospitals							
Barnes Hospital[1-3-102,105]	St Louis	T Walsh	2,888	15,261	2	9	50
McMillan Hospital[1-3]	St Louis						
Albany Hospital[1-3]	Albany, N Y	B Volk	592		1	3	[illegible]
Brooklyn Eye and Ear Hospital[1,3]	Brooklyn, N Y	J P Baker	6,119	34,871	3	6	100
Kings County Hospital[1,3]							
County Division	Brooklyn, N Y	E A Sunde	441	4,709	1	2	95
University Division	Brooklyn N Y	J Gilbert	311	2,555	1	2	65
Long Island College Hospital[1-3]	Brooklyn N Y	C R Weeth	938	1,919	1	3	
Buffalo General Hospital[1-3-188]	Buffalo	H E Bozer	897	1,209	1	3	125
Bellevue Hospital Center							
Division IV—N Y University Postgraduate Med School[1,3]	New York City	J Daly	2,600	14,093	4	12	[illegible]
Harlem Eye and Ear Hospital[1,3]	New York City	E Grabscheib	2,495	24,871	1	3	50
Manhattan Eye, Ear and Throat Hospital[1,3]	New York City	W B Allan	7,393	42,458	4	8	
Mount Sinai Hospital[1-3]	New York City	R Kramer	663	5,667	1	2	50

Numerical and other references will be found on pages 414 to 416

16 OTOLARYNGOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
New York City Hospital[1,2]	New York City	O C Rich	221	4,930	1	3	98
New York Eye & Ear Infirmary[1,2]	New York City	J S Hanley	3 039	33,571	4	12	
New York Hospital[1,2]	New York City	J A. Moore	1 765	11,314	2	4	84
New York Polyclinic Medical School and Hosp[1,2]	New York City	W W Morrison	898	6 655			
Presbyterian Hospital[1,2]	New York City	E P Fowler	1,823	16 629	4	8	
Roosevelt Hospital[1,2]	New York City	R C Grove	636	5 459	1	3	116
St Luke's Hospital[1,2]	New York City	V C McCuaig	832	9,640	1	3	75
Strong Memorial Rochester Municipal Hospitals[1,2]	Rochester N Y	C A Heatly	1,125			2	42
State University of New York Medical Center[1]	Syracuse N Y	A H Rubenstein			1	2	191
Duke Hospital[1,2,9,230]	Durham N C	W W Eagle	557	9,165	3	8	67
McPherson Hospital[1,2,21]	Durham N C	T C Kerns	1,031	15,954	1	3	
North Carolina Baptist Hospital[1,2]	Winston-Salem N C	J A Harrill	364	1,914	1	3	125
Cincinnati General Hospital[1,2]	Cincinnati	H M Goodyear	536	4,222	1	2	
Cleveland Clinic Hospital[1,2]	Cleveland	H E Harris	797	15,637	2	6	175
St Luke's Hospital[1,2]	Cleveland	T W Thoburn	3 037	2,967	1	3	120
Ohio State University Hospitals							
University Hospital[1,2,28]	Columbus Ohio	E W Harris	312	2,278	1	5	150
University Hospitals[1,2]	Oklahoma City	O A. Watson	142		1	1	95
University of Oregon Medical School Hospitals and Clinics[1,2,33]	Portland Ore	G L Boyden	452	3,263	1	3	85
George F Geisinger Memorial Hospital[1,2]	Danville Pa	F W Davison	961	10 042		3	125
Graduate Hospital of the University of Pa[1,2,4]	Philadelphia	E S Campbell	1 463	2,234	1	2	200
Hospital of the University of Pennsylvania[1,2]	Philadelphia	H Schenck	1,395	3,274	3	8	
Jefferson Medical College Hospital[1,2]	Philadelphia	L H Clerf	1 762	9,519	1	3	35
Temple University Hospital[1,2]	Philadelphia	M S Ersner—C L Jackson	1,657	2,594	2	4	
Mercy Hospital[1,2]	Pittsburgh	J A Perrone	1 729	896	1	3	
Pittsburgh Medical Center[1,2]	Pittsburgh	T McCollough K. M. Day	4,933	4,529	1	4	125
John Gaston Hospitals[1,2]	Memphis Tenn	S H Sanders	290		1	2	85
University of Texas Medical Branch Hospitals[1,2,167]	Galveston Texas	J Robinson	334	10,115	1	4	150
Jefferson Davis Hospital[1]	Houston Texas	H. H Harris		7 087	1	2	50
University of Virginia Hospital[1,2]	Charlottesville Va	G S Fitz Hugh	1 026	5 493	1	3	50
Medical College of Virginia Hospital Division[1-3,292]	Richmond Va	P N Pastore	892	3,939	2	4	50
University Hospitals							
State of Wisconsin General Hospital[1]	Madison Wis	M E Bennett	635		1	2	

The following hospitals approved by the Council and the American Board of Otolaryngology, through the Residency Committee for Otolaryngology offer training in otolaryngology of less than three years duration which is integrated with or contributory to a fully approved program

Hospitals 8 Assistant Residencies and Residencies 9

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
FEDERAL							
Veterans Admin Hospital[1,2,3]	Portland Ore	G L Boyden	168			1	
NONFEDERAL							
Children's Hospital[1,2,26,41,42]	San Francisco	R C Martin	883	1,052	1	1	125
San Francisco Hospital	San Francisco						
Stanford University Service[1,2]		S Von Christierson	189		1	1	175
University of California Service[1,2]		L F Morrison	125			1	175
Minneapolis General Hospital[1,2]	Minneapolis	R E Priest	207	2,189		1	182
Ancker Hospital[1,2]	St Paul	G Strate	210	1,998		1	151
St Louis Children's Hospital	St Louis						
St Louis City Hospital[1,2]	St Louis	E Lyman	238	4 789		1	187
Philadelphia General Hospital[1,2]	Philadelphia	L K. Elfman	186		1	2	113

17 PATHOLOGY

The following services have been approved by the Council and the American Board of Pathology Services which have been evaluated on the basis of training in the two categories pathologic anatomy and clinical pathology are designated as follows a—pathologic anatomy only c—clinical pathology only p—pathologic anatomy and clinical pathology Training in hospitals which are not so designated in this list will be evaluated by the Board on an individual basis at the time of application for certification

Hospitals 509, Assistant Residencies and Residencies, 1 662

FEDERAL

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered*	Total Residencies Offered*	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY										
Letterman Army Hospital[1-3,66]	San Francisco	M W Bayliss	247	5,338	5,832	455,295			4p	
Fitzsimons Army Hospital[1,66]	Denver	H. A Van Auken	266	7,797	7,697	665 479			4p	
Armed Forces Institute of Pathology[1]	Washington D C	H F Smetana	18 409	55 400	55 400			20	1a	
Army Medical Center[1,2,66,67]	Washington D C	K F Ernst H Sprinz	302	7,945	7,922	912,262	2	8	4p	
Brooke Army Medical Center[2-46,50]	San Antonio Texas	C J Lind, Jr	453	6,122	6,122	783,503			4p	
UNITED STATES NAVY										
U S Naval Hospital[1,2]	Oakland Calif	H V O Connell	207	6 007	6 007	260 691			4p	
U S Naval Hospital[1]	San Diego Calif	J S Shaver	463	8 133	8,138	692 135	2	2	4a	
U S Naval Hospital[1,2]	Bethesda Md	V E Martens	222	5,904	5,904	17 018	3	3	4p	
U S Naval Hospital[1]	St Albans N Y	J W Pickren	107	7,192	4,135	250,249			3a	
U S Naval Hospital[1,2]	Philadelphia	J D Langston	125	3,374	15,023	220,363	2	2	4p	
UNITED STATES PUBLIC HEALTH SERVICE										
U S Public Health Service Hospital[1,2]	New Orleans	L L Swan	127	3 427	3 049	162 775		3	4p	
U S Public Health Service Hospital[1,3-4]	Baltimore	T P Crahan	124	3 755	3,675	153,807	1	4	4p	
National Institutes of Health—Clinical Center[1]	Bethesda Md	H L Stewart	25	245	930	4 458	1	1	1a	
U S Public Health Service Hospital[1,2]	Staten Island N Y	G F Cameron Jr	143	4 446	3,974	238 795	1	3	4p	
U S Public Health Service Hospital	Seattle	T L Perrin	131	3,267	3 029	100 469	1	2	2p	
VETERANS ADMINISTRATION										
Veterans Admin Hospital[1,2]	Long Beach Calif	B E Konwaler	441	3 740	3 698	505 034	5	5	4p	
Veterans Admin Hospital[1,2]	Los Angeles	L Kaplan	854	6,320	6,220	724 [illegible]	5	13	4p	
Veterans Admin Hospital[1]	San Francisco	J B Frerichs T V Feichtmeir		3,294	[illegible]	[illegible]	1	4	2p	

Numerical and other references will be found on pages 414 to 416

17 PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
FEDERAL										
Veterans Admin Hospital[1-3]	Denver	W B Dublin	225	1,656	83	117,889	1	2	3[p]	
Veterans Admin Hospital[1-3 61]	West Haven, Conn	R Yesner	42	546	489	55 020	1	4	2[p]	
Veterans Admin Hospital[1 3]	Washington D C	J S Howe	223	1,356	1 356	125 744		3	2[p]	
Veterans Admin Hospital[1-3 68]	Coral Gables, Fla	R V Thomson	243	2,020	2,020	97,370	2	5	4[p]	
Veterans Admin Hospital[1-22 26]	Atlanta Ga	H Murray	150	1,510	1,510	173,931	1	3	4[p]	
Veterans Admin Hospital[1]	Hines, Ill	W L McNamara	675	5,101	5,101	782 373		1	4[p]	
Veterans Admin Hospital[1-3]	Indianapolis	(See Indiana University Medical Center Hospitals)								
Veterans Admin Hospital[1]	Des Moines, Iowa	T E Corcoran	140	2,426	2,426	145,950	1	4	4[p]	
Veterans Admin Hospital[1 3]	Iowa City	K R Cross	124	1,701	1,631	113 164	2	6	4[p]	
Veterans Admin Hospital[1 3]	Topeka, Kan	A Plaut	86	605	603	96,862	1	1	1[p]	
Veterans Admin Hospital[1 3 30]	Wadsworth Kan	P E Garber	218	1 073	1,459	146,073	2	4	4[p]	
Veterans Admin Hospital[1 3]	Louisville Ky	H Gordon	153	2,330	2,322	107,745	1	3	4[p]	
Veterans Admin Hospital[1]	New Orleans	J Ziskind	164	2 105	2,100	168,552	1	3	3[p]	
Veterans Admin Hospital[1 3]	Fort Howard, Md	W B VandeGrift	145	891	851	79 765	1	1	2[p]	
Veterans Admin Hospital[1 3]	Boston (Jamaica Plain), Mass	J D Houghton	361	3,703	3,674	303,834	4	4	3[p]	
Veterans Admin Hospital[1 3 16]	Dearborn Mich	(See Wayne University Affiliated Hospitals)								
Veterans Admin Hospital[1 3 20]	Minneapolis	D F Gleason	314	5,186	4,752	288 158	2	4	4[p]	
Veterans Admin Hospital[1 3]	Kansas City Mo	R C Schaffer	183	1,704	1,312	110,924	1	2	4[p]	
Veterans Admin Hospital[1 3]	St Louis	H M Hillenbrand	13	277	242	8 638		2	4[p]	
Veterans Admin Hospital[1]	Albuquerque N Mex	W Hentel	108	1 829	1,287	240 829	1	1	1[a]	
Veterans Admin Hospital[1]	Albany, N Y	T S Beecher	183	2,800	2,900	183,416	1	3	3[p]	
Veterans Admin Hospital[1 3 18]	Brooklyn	M Bovarnick	250	3,577	3,577	314,835	1	4	4[p]	
Veterans Admin Hospital[1 3]	Buffalo	A Golden	103	2 244	2,132	240,863		2	3[p]	
Veterans Admin Hospital[3]	New York City (Bronx)	B Gordon	302	4 841	4,841	431,568	3	7	3[p]	
Veterans Admin Hospital[1 3]	Durham, N C	R D Baker	89	1,859	1,859	130,589	2	4	4[p]	
Veterans Admin Hospital[1 3]	Oteen, N C	O Kanner	103	1,793	1,793	309 591	1	1	1[p]	
Veterans Admin Hospital[1 3]	Cleveland	J R Kahn	365	4,020	3,500	297,002	1	4	4[p]	
Veterans Admin Hospital[1 3]	Dayton Ohio	A S Thompson	290	1,865	1,865	217,058	1	4	2[a]	
Veterans Admin Hospital[1-30]	Aspinwall Pa	G J Brilmyer	304	2 169	2 169	231,062	1	6	3[p]	
Veterans Admin Hospital[1 3]	Philadelphia	A L Pietroluongo	214	1 315	1,315	119 482	1	4	4[p]	
Veterans Admin Hospital[1 3]	Memphis Tenn	J M Young	252	4,357	4,020	315,346	1	3	3[p]	
Veterans Admin Hospital[1]	Nashville, Tenn	S H Auerbach	127	1 084	1,560	157,206	1	2	2[p]	
Veterans Admin Hospital	Dallas Texas	L Weiss	376	2,007	2,007	161,753	2	2	3[p]	
Veterans Admin Hospital[1 3]	Houston, Texas	B Halpert	726	2,390	2,063	318,660	1	4	4[p]	
Veterans Admin Hospital[1 3]	McKinney Texas	B E McCain	148	2,009	2,009	226,780	2	6	4[p]	
Veterans Admin Hospital	Salt Lake City	O N Rambo, Jr	82	979	749	81,709	1	2	2[a]	
Veterans Admin Hospital[1]	White River Jct, Vt								1[p]	
Veterans Admin Hospital[1 3]	Richmond Va	J R Kriz	168	1,934	2,019	204 870	2	2	2[p]	
Veterans Admin Hospital[1]	Seattle	D V Brown	228	975	894	69 104	2	2	3[p]	
Veterans Admin Hospital[1 3]	Martinsburg W Va								2[p]	
Veterans Admin Hospital[1]	Milwaukee	J Lubitz	402	2,258	2,117	346,373	2	5	4[p]	
NONFEDERAL										
Baptist Hospital[1 3]	Birmingham Ala	A E Casey	177	7 639	7,077	309,221		3	4[p]	200
Jefferson Hillman Hospital[1 3 51]	Birmingham, Ala	J F A McManus	288	5 390	50,426	50 426	2	6	4[a]	
Lloyd Noland Hospital[1 3]	Fairfield, Ala	W F Scott Jr	107	1,611	1,608	126 547	1	1	1[p]	225
City Hospital	Mobile, Ala	E B Wert	212	1,067	1 048	70 481	1	1	3[p]	200
Memorial Hospital[1 3]	Phoenix Ariz	M Rosenthal	94	2 300	2 175	67 679			1[a]	
University Hospital[1 3]	Little Rock, Ark	A Nettleship	187	7,714	7,695	134,001	2	4	3[a]	120
Kern General Hospital[1]	Bakersfield, Calif	R W Huntington, Jr	282	2 485	2 366	168 653	1	3	4[p]	325
Herrick Memorial Hospital[1 3]	Berkeley, Calif	H R Fishback P G Winquist	179	3,010	3,027	89,760	1	4	3[p]	
Glendale Sanitarium & Hospital[1]	Glendale Calif	A F Brown	164	8 065	2 496	77,240	1	2	4[p]	164
Loma Linda Sanitarium & Hospital[1-3]	Loma Linda, Calif	C S Small	150	3 439	3,300	71,000	3	6	4[p]	192
Seaside Memorial Hospital[1 3]	Long Beach, Calif	J A Tuta	110	5 787	4,707	103,410	1	3	2[p]	150
California Hospital[1 3]	Los Angeles	A Wright	160	6,489	4 716	153 429	1	2	4[p]	175
Cedars of Lebanon Hospital[1-3]	Los Angeles	N Friedman	251	6,615	6,478	147,454	2	3	4[p]	225
Childrens Hospital[1 3]	Los Angeles	W C Thomas	212	747	747	117,568	2	2	1[a]	40
Hospital of the Good Samaritan[1-3]	Los Angeles	L J Tragerman		6 082	4,257	154,930	1	4	4[p]	200
Los Angeles County General Hospital[1]	Los Angeles	E Butt	2 080	13 320	10 900	590 162		4	4[p]	200
Queen of Angels Hospital[1 3]	Los Angeles	A R Camero	256	5,525	4,755	169 347	1	1	3[p]	
St Vincent's Hospital[3]	Los Angeles	J E Kahler	101	4,451	3,896	51 356	1	2	1[p]	
White Memorial Hospital[1-3]	Los Angeles	O B Pratt	208	4 625	4,000	120,310	1	4	4[p]	
Highland Alameda County Hospital[1 3]	Oakland, Calif	R J Parsons	304	4,079	3,718	140,629	1	4	4[p]	195
Kaiser Foundation Hospital[1-3]	Oakland, Calif	M Friedman	209			330,209	4	4	2[a]	175
Collis P and Howard Huntington Memorial Hosp[1-3]	Pasadena, Calif	H R Fisher	277	9 795	7,393	220 757	2	5	4[p]	240
Sacramento County Hospital[1 3]	Sacramento, Calif	L E Nolan	470	2 607	2,067	140,052	1	1	1[a]	300
San Bernardino County Charity Hospital	San Bernardino Calif	J D Kirshbaum	247	4,939	4,265	95 115	2	2	2[a]	100
Mercy Hospital[1 3]	San Diego, Calif	D A De Santo	191	6,813	6,299	147 846	1	4	4[p]	175
San Diego County General Hospital[1 3]	San Diego, Calif	K Fowler	323	1,846	1,472	106,294	1	4	4[p]	160
Franklin Hospital[1 3]	San Francisco	J L Carr	70	6 080	3,137	39,130	1	1	2[p]	116
French Hospital[1 3]	San Francisco	G A Watson	69	3,000	2 111	75,206	1	1	2[p]	175
Mount Zion Hospital[1 3]	San Francisco	G R Biskind	213	4 299	4 242	120,349	1	4	4[p]	150
St Francis Memorial Hospital[1 3]	San Francisco	J L Zundell	101	5,911	3,094	72 650	1	2	2[p]	300
St Luke's Hospital[1-3]	San Francisco	M B Black	119			89 484	1	2	2[p]	200
San Francisco Hospital	San Francisco									
Stanford University Service[1 3]		A J Cox, Jr	256	1 162	1,162		1	1	3[a]	175
University of California Service[1-3]		J L Carr	222	1 521	1,621		1	1	3[a]	175
Stanford University Hospitals[1 3]	San Francisco	A J Cox	165	3,222	3,222	81 930	1	3	3[a]	80
University of California Hospital[1-3]	San Francisco	J F Rinehart	175	4,169	4 169	82,378		4	3[p]	87
Santa Clara County Hospital[1]	San Jose Calif	D L Alcott	263	2,068	2,068	124,683	1	3	4[p]	260
Santa Barbara Cottage Hospital[1-3]	Santa Barbara Calif	E L Benjamin	104	2 973	2,603	57 381	1	3	2[a]	110
Harbor General Hospital[1 3]	Torrance, Calif	S S Madden	482	3,168	3,073	244,818	1	4	4[p]	200
Glockner Penrose Hospital[1-3]	Colorado Springs Colo	M Berthrong	93	2,255	2,255	83 268	1	2	2[p]	200
Children's Hospital[1 3]	Denver	H D Palmer	121			117 049	1	3	4[p]	
General Rose Memorial Hospital[1-3]	Denver	K T Neubuerger	130	5 031	3 880	86 404	1	2	2[a]	160
Presbyterian Hospital[1 3]	Denver	A E Lubchenco	137	3,005	2,630	57,858	1	1	2[a]	150
St Joseph's Hospital[1]	Denver	S M Prather Ashe	201			65,622	1	2	4[p]	150
St Luke's Hospital[1 3]	Denver	W C Black	181	4,531	4,627	132,302	2	2	4[p]	150
University of Colorado Medical Center		J B McNaught								
Colorado General Hospital[1-3-22]	Denver	J H Holmes	337	3 130	3 120	212 444	4	10	4[p]	150
Denver General Hospital[1-3-22]	Denver	W White	772	2,497	2,497	105 033			4[p]	
Colorado State Hospital[1-3]	Pueblo, Colo	M Gallavan	161	191	214	69 409	2	4	3[p]	
Bridgeport Hospital[1 3]	Bridgeport, Conn	I B Akerson	145	4 388	4,388	134,114	1	2	2[a]	125
Greenwich Hospital	Greenwich, Conn								2[p]	
Hartford Hospital[1-3]	Hartford, Conn	R E Kendall	630	10,656	9,933	233,959	1	3	4[p]	50

Numerical and other references will be found on pages 414 to 416

17 PATHOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered[a]	Total Residencies Offered[a]	Length of Approved Program (Years)	Beginning Stipend (Month)
St Francis Hospital[1-3]	Hartford Conn	L P Hastings	225	6 412	5,835	197,209	2	4	4^{p}	100
Middlesex Hospital[1,3]	Middletown Conn	C E McLeod	115	2 605	2,194	54 465		1	2^{p}	200
New Britain General Hospital[1,3]	New Britain Conn	P D Rosahn	109	4 068	2,812	126 499	1	4	4^{p}	180
Grace-New Haven Community Hospital[1,3]	New Haven Conn	A A Liebow	504	4 730	4 700	185,397	1	2	4^{p}	50
Hospital of St Rapheal[3]	New Haven Conn	R Nesbit	197	5 188	5,076	97 773	1	4	4^{p}	125
Norwalk Hospital[1,3]	Norwalk Conn	R N Barnett	124	2,563	2,563	99,970	2	2	3^{p}	160
Stamford Hospital[1,3]	Stamford Conn	W M Layton Jr	197	2,865	2 752	149,244	1	4	4^{p}	200
St Mary's Hospital	Waterbury Conn	M. E Cox	139	4 747	3 002	173 144	1	3	3^{p}	225
Waterbury Hospital[1]	Waterbury Conn	J O Collins	259	4 048	3,043	125,806	1	2	4^{p}	225
Delaware Hospital[1,3]	Wilmington Del.	J W Howard	270	6 047	7 417	155,812	1	4	4^{p}	180
Memorial Hospital[1,3]	Wilmington Del	J W Abbi [illegible]	155	3 495	3 495	82,867	1	2	2^{a}	175
Wilmington General Hospital[1,2]	Wilmington Del	J V Casella	72	2 742	2 742	102,949	1	1	1^{p}	250
Children's Hospital[1,3]	Washington D C	E C Rice	112	549	487	122,853	1	2	2^{p}	50
District of Columbia General Hospital[1,3]	Washington D C	D Weiss	720	2,880	2,880	212 023	2	6	4^{p}	100
Doctors Hospital[1,3]	Washington D C	O B Hunter Jr	124	4,900	4,207	211,898	1	2	2^{p}	150
Garfield Memorial Hospital[1,2]	Washington D C	E C Rice	194	3,119	3 022	97,920	3	3	4^{p}	210
Georgetown University Hospital[1,2]	Washington D C	C F Geschickter	257	4,139	4,139	231,916	4	8	4^{p}	
George Washington University Hospital[1,3]	Washington D C	T M Peery	206	6,236	6,236	262 473		4	4^{p}	130
Providence Hospital[1,3]	Washington D C	K L. McCoy	188	4,820	4,807	129 010	1	4	4^{p}	200
Sibley Memorial Hospital[1,3]	Washington D C	O B Hunter Jr	187	4,591	4,156	105 014	1	2	4^{p}	200
St Vincent's Hospital[1,3]	Jacksonville Fla	C H Wells	147	4 455	3 154	100,648	1	1	1^{a}	135
Jackson Memorial Hospital[1,3]	Miami Fla	W A D Anderson	498	8,233	6,924	49,502	1	7	4^{p}	75
Mount Sinai Hospital[1,3]	Miami Beach Fla	M. Lev	173	2,329	2 027	121,379	1	4	4^{p}	250
St. Francis Hospital[1,3]	Miami Beach Fla	R J Poppiti	105	2,894	2,894	62,904	1	1	1^{p}	200
Crawford W Long Memorial Hospital[1,3]	Atlanta Ga	D Ayer	231	5,247	5 090	110,818	2	4	4^{p}	110
Georgia Baptist Hospital[1,3]	Atlanta Ga	J Funke	158	4,648	4,648	101,837	1	2	2^{p}	290
Grady Memorial Hospital[1-3]	Atlanta Ga	W H Sheldon	502	7,368	21,589	229,559	5	10	4^{p}	20
Piedmont Hospital[1]	Atlanta Ga	W Mathews	41	1,558	1,558	58,935	1	4	4^{p}	
University Hospital[1,3]	Augusta Ga	D F Mullins	200	1 126	4,510	101 001	1	3	3	160
Emory University Hospital[1,3]	Emory University Ga	A Golden	176	4,913		118 400		2	4^{p}	190
Alexian Brothers Hospital[3]	Chicago	J P Simonds	122	1,389	1,272	62,[illegible]96	1	1	1^{p}	125
Augustana Hospital[1,3]	Chicago	G Milles	164	3,232	2,938	84,918	1	3	4^{p}	150
Chicago Wesley Memorial Hospital[1,3]	Chicago	T C Laipply	243	6,242	6,242	243,918	1	4	4^{p}	50
Children's Memorial Hospital[1,2]	Chicago	J D Boggs	121	1,078	1 078	78,[illegible]6		2	1^{p}	75
Cook County Hospital[1,3]	Chicago	H Popper	1,515	9,130	7,825	444 491	4	4	4^{p}	50
Englewood Hospital[3]	Chicago	G T Rich	115	1 754	1 739	65,270	1	1	1^{a}	200
Grant Hospital[1,3]	Chicago	C C Mason	145	3,907	2 734	87,698	1	1	3^{p}	150
Illinois Masonic Hospital[1,3]	Chicago	L S King	248	3,291	3,169	174 448	1	2	3^{p}	115
Mercy Hospital[1,3]	Chicago	J Peers	154	3 742	2,807	46,659	1	1	3	100
Michael Reese Hospital[1-3]	Chicago	O Saphir	527	6 758	6 758	25 000	2	7	4^{p}	100
Mount Sinai Hospital[1,3]	Chicago	I Davidsohn	166	14 765	14 765	289,836		6	4^{p}	
Norwegian American Hospital[1,3]	Chicago	A Learner	80	2,714	1 769	74 077	1	1	1^{p}	225
Passavant Memorial Hospital[1,3]	Chicago	M Wheelock	121	3 150	3,150	121	2	4	4^{p}	50
Presbyterian Hospital[1]	Chicago	G M Hass	264	4,625	4,625	196,816	2	4	3^{a}	125
Provident Hospital[1,3]	Chicago	E F Hirsch	79	2,[illegible]80	2,208	78,900	1	1	1^{p}	200
Ravenswood Hospital[1,3]	Chicago	L R Ferraro	169	3 013	3,013	75,994	2	2	2^{p}	75
St Joseph Hospital[1,3]	Chicago	G Stevenson	89		2 420	67,247	1	4	2^{p}	200
St Luke's Hospital[1,3]	Chicago	E F Hirsch	251	8,199	7,310	307,150	2	6	4^{p}	50
St Mary of Nazareth Hospital	Chicago	E W Thurston	119	3,256	2,583	164 081	1	1	2^{a}	150
University of Chicago Clinics[1,3]	Chicago	P R Cannon	307	6,214	5 738	333 089	1	4	4^{p}	175
University of Illinois Research and Educational Hospitals[1-3]	Chicago	G A Bennett	263	5 491	5 491	401,618	2	6	4^{p}	110
Evanston Hospital[1]	Evanston Ill	H G Davis Jr	255	4,303	3,953	160,393	1	3	4^{p}	50
St Francis Hospital[1,3]	Evanston Ill	J W Henry	249	5,698	4,074	165 000	1	3	3^{p}	
Methodist Hospital of Central Illinois[1,2]	Peoria Ill.	H I Brown	154			82,121	1	1	2^{p}	200
St. Francis Hospital[1,3]	Peoria Ill	J R Kraft	234	5,251	3 706	122,565	1	2	4^{p}	225
St Anthony Hospital[1,3]	Rockford Ill	A. R K Matthews	223	4 406	4,232	88 676	1	3	3^{p}	
St Joseph Hospital[1,3,100]	Fort Wayne Ind	S M Rabson	185	3,874	3,333	91,399	2	2	2^{p}	250
Indianapolis General Hospital[1]	Indianapolis	P V Evans	319	2 703	2,684	143,532	1	4	3	300
Indiana University Medical Center Hospitals										
Indiana University Medical Center[1]	Indianapolis	E B Smith	360	3,695	3 600	195,973	4	9	4^{p}	175
Veterans Admin Hospital[1,3]	Indianapolis	D Rosenbaum	275	1,682	1 682	157 725	1	3	3^{p}	
Methodist Hospital[1-3]	Indianapolis	H M. Banks	213	12 083	8,337	442,692	1	4	4^{p}	273
St Vincent's Hospital[1]	Indianapolis	L N Foster	193	5,835	3,242	96 677	1	2	4^{p}	275
St Elizabeth Hospital[1,3]	Lafayette Ind	J M. McFadden	158	3,679	3 467	105,117	1	3	3^{p}	175
Ball Memorial Hospital[1]	Muncie Ind.	L G Montgomery	136	5 764	3,830	195,206	1	4	4^{p}	200
South Bend Medical Foundation Hospitals	South Bend Ind	C S Culbertson	352	9,589	9,258	202 006	2	5	4^{p}	250
Elkhart General Hospital	Elkhart Ind									
St Joseph Hospital	Mishawaka Ind									
Memorial Hospital	South Bend Ind.									
St Joseph Hospital	South Bend Ind									
Iowa Methodist Hospital[1,3]	Des Moines Iowa	R C Dunn	148	3,634	5 414	108 438	1	2	2^{a}	150
Mercy Hospital[1,3]	Des Moines Iowa	F C Coleman	188	3 496	3 496	125,120	1	4	4^{p}	300
University Hospitals[1,3]	Iowa City	E D Warner	873	5 475	5 475	97,631	2	4	3^{p}	208
University of Kansas Medical Center[1]	Kansas City Kan	R Stowell	393	7,883	7 783	394,351	4	10	4^{p}	125
St Francis Hospital[1,3]	Wichita Kan	W P Callahan Jr	226			174,294	1	4	4^{p}	275
Louisville General Hospital[1-3]	Louisville Ky	A. J Miller	270	2,606	2,587	179 603	1	3	3	153
Baton Rouge General Hospital[1]	Baton Rouge La	S Colvin Jr W S Randall, Jr	62	4,524	3,870	157 653	1	1	1^{c}	300
Charity Hospital of Louisiana Independent Unit[1]	New Orleans	E Moss	857	2,931	2,931	707,157	3	12	4^{p}	100
Hotel Dieu Sisters Hospital[1]	New Orleans	R M. Hartwell	121	7,853	7,853	178 094	1	4	4^{p}	200
Southern Baptist Hospital[1]	New Orleans	E H Lawson	172	24 716	24 716	63,225	1	4	4^{p}	225
Touro Infirmary[1]	New Orleans	A Hertzog	173	6,680	6 486	267,230	1	4	4^{p}	100
Confederate Memorial Medical Center[1]	Shreveport La	W R Mathews	263	4,832	4,832	203,608	1	4	3^{a}	60
Eastern Maine General Hospital[1]	Bangor Maine	R C Wadsworth	155	5 722	5 076	143,944	1	2	4^{p}	100
Central Maine General Hospital[1]	Lewiston Maine	C F Branch	151	5 063	5 063	83 667	1	2	4^{p}	150
Maine General Hospital[1]	Portland Maine	J E Porter	204	4,193	4,342	140,217	1	4	4^{p}	
Baltimore City Hospitals[1,3]	Baltimore	A D Pollack	249	1,137	896	137 415	1	2	2^{a}	50
Johns Hopkins Hospital[1,3]	Baltimore	A. R. Rich	601	5 612	5 612			3	3^{a}	90
Mercy Hospital[1,3]	Baltimore	C G Warner	164	3,251	3,251	895 022		1	1^{a}	275
Sinai Hospital[1,3]	Baltimore	T Weinberg	186	7,509	7,509	217 769	2	6	4^{p}	110
Union Memorial Hospital[1,3]	Baltimore	W C Merkel	107	8 001	7,920	121,234	1	1	4^{p}	115
Beverly Hospital[1]	Beverly Mass	D E Brown	130	1,479	1 479	71 [illegible]6	1	1	4^{p}	100
Beth Israel Hospital[1,3]	Boston	M Schlesinger	168	3 741	3 741	171 609	1	3	4^{p}	100
Boston City Hospital[1,3]	Boston	G K Mallory	934	5,396	5,256	159,801	3	9	4^{p}	112
Boston Lying In Hospital[1,3,141]	Boston	W B Ober	97	1,977	1,977	56 614	1	2	1^{p}	100
Carney Hospital[1,3]	Boston	M. W Shapiro	51	2,475	2,475	67 018	1	1	1^{a}	125
Children's Medical Center[1,3]	Boston	S Farber	291	1 752	1,752	9[illegible] 051		3	1^{a}	42
Faulkner Hospital[1,3]	Boston	P M. Le Compte	115	2,905	2,372	59,943		2	1^{a}	132

Numerical and other references will be found on pages 414 to 416.

17. PATHOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Massachusetts General Hospital[1-3]	Boston	B Castleman	588	8 218		8 218	2	8	4^p	
Massachusetts Memorial Hospitals[1, 3]	Boston	S Sommers	129	2 871	2,752	129,298	1	1	2^a	100
New England Center Hospital[1, 3]	Boston								2^a	
New England Deaconess Hospital[1, 3]	Boston	S Warren	229	7,365	7,365	246 775			4^p	200
Peter Bent Brigham Hospital[1, 3, 5, 1]	Boston	G I Dammin	296	2,777	2 717	65,952	4	5	3^a	167
St Elizabeth's Hospital[1, 3]	Boston	J H Graham	100	4 548	4,548	112,462	1	1	1^a	125
Mount Auburn Hospital[1, 3]	Cambridge, Mass	H E MacMahon	118	2,991	2,991	85,788	1	1	1	125
Truesdale Hospital[1-3, 15]	Fall River, Mass	W Freeman	74			94 812	1	1	1^a	150
Burbank Hospital[1]	Fitchburg, Mass	H J Sparling, Jr	63	2,799	2 799	50 088	1	1	1^p	
Framingham Union Hospital	Framingham Mass	W C Swatek	81	3,745	8 600	88,835	1	1	2^a	100
Lawrence General Hospital[1, 3]	Lawrence, Mass	L S Jolliffe	163	1,503	1,503	79,756	1	4	3^p	115
Lynn Hospital[1-3]	Lynn Mass	H Olken	117			108,732	1	2	1^p	150
Malden Hospital[1, 3]	Malden, Mass	M V Mackenzie	86	2 481	2 471	66 563	2	2	1^a	125
St Luke's Hospital[1-3]	New Bedford, Mass	N Kiarsis	99	4,186	3,044	177 055	2	4	2^a	200
Newton Wellesley Hospital[1, 3]	Newton Lower Falls, Mass	D Skinner	137	4,078	8 047	93,970	1	3	2^p	170
Quincy City Hospital[1, 3]	Quincy, Mass	R B Street, Jr	156	8 181	6,984	90,191	2	2	2^p	168
Salem Hospital[3]	Salem, Mass	D A Nickerson	282	6,440	6 440	89,772	1	4	4^p	125
Springfield Hospital[1-3]	Springfield, Mass	W Kaufmann	143	4,441	4 441	101 664	1	4	2^a	125
Pondville Hospital	Walpole, Mass	S Warren	92	1,520	1,520	37 501		2	1^a	
Memorial Hospital[1-3]	Worcester, Mass	R C Sniffen	106			60 888	1	1	2^p	200
Worcester City Hospital[3]	Worcester Mass	F Fite	308	2,969	2,600	108,821		2	3^p	215
St Joseph's Mercy Hospital[1, 3]	Ann Arbor Mich	S C Howard	106	3 539	7,078	118 535	1	2	2^a	200
University Hospital[1-3]	Ann Arbor Mich	C Weller	495	8,457	4,228	56 908	4	12	3	140
Leila Y Post Montgomery Hospital[1]	Battle Creek Mich	A A Humphrey	136			72,435	1	1	3^p	215
Detroit Memorial Hospital[1, 3]	Detroit	H J Linn	131				1	3	4^p	250
Grace Hospital[1, 3]	Detroit	C I Owen	330	9 685	9 685	241,936	1	3	3^p	225
Harper Hospital[1-3]	Detroit	P F Morse	343	7 166	7 160	242 582	1	4	4^p	225
Henry Ford Hospital[1, 3]	Detroit	F W Hartman	397	8,973	8 973	477 431	2	8	4^p	225
Mount Carmel Mercy Hospital[1, 3]	Detroit	L W Gardner	305	7,527	7,527	226 090	1	4	4^p	225
Providence Hospital[1, 3]	Detroit	D H Kaump	240	4,523	4,523	180 180	1	4	4	250
Wayne University Affiliated Hospitals										
Veterans Admin Hospital[1-3]	Dearborn Mich	M W Wilson	333	2 769	2,769	287,795	2	5	4^p	
Herman Kiefer Hospital[1, 3]	Detroit	P C Martineau	240	1 472	1,472	367 864	2	2	1^p	265
Receiving Hospital[1, 3]	Detroit	O A Brines	795			424 358	2	8	4^p	254
Woman's Hospital[1, 3]	Detroit	D C Beaver	134	14 699	14,610	120,848	1	2	2^a	250
Wayne County General Hospital and Infirmary[1-3]	Eloise Mich	S E Gould	369	3 916	3 916	210 935	8	5	4^p	287
Hurley Hospital[1]	Flint, Mich	G R Buckus	209	4 838	3 708	119 174	1	1	4^p	325
Blodgett Memorial Hospital[1, 3]	Grand Rapids, Mich	C A Payne	200	7 261	7,261	107,227	1	2	2^p	200
Butterworth Hospital[1]	Grand Rapids Mich	G T Schloss	152	7,994	5 125	128 110	1	2	2^a	220
Edward W Sparrow Hospital[1, 3]	Lansing Mich	C E Black	190	4 235	4 235	109 054	1	4	3^a	325
St Joseph Mercy Hospital[1, 3]	Pontiac, Mich	R E Olson	113	3 044	3 620	90 016			2^p	
Saginaw General Hospital[1, 3]	Saginaw Mich	R V Bucklin	153	2 493	2,447	82,577	1	2	2^p	325
St Luke's Hospital[1, 3]	Duluth Minn	A H Wells	398	7,387	7 135	304 642	1	4	4^p	200
St Mary's Hospital[1-3]	Duluth Minn	W M Knoll	221	3,068	3,675	260 120	1	4	4^p	175
Minneapolis General Hospital[1, 3]	Minneapolis	J I Coe	370	3,300	2,461	440,596	1	2	8^a	182
Northwestern Hospital[1, 3]	Minneapolis	F H Lott	200	4,675		103 433	1	1	2^a	200
St Barnabas Hospital[1, 3]	Minneapolis	N H Lufkin	153	4 242	3,495	140,806	1	1	2^a	175
Swedish Hospital[1, 3]	Minneapolis	A Jay	182			100 463	1	1	3^p	200
University of Minnesota Hospitals[1, 3]	Minneapolis	J Dawson	446	6 497	15,508	530,846	2	6	4^p	102
Mayo Foundation[1, 3]	Rochester Minn	J W Kernohan	808	26 042	26 042	950 000	6	22	4^p	150
Ancker Hospital[1, 3]	St Paul	J F Noble	366	1,599	1 599	194 058	1	1	1^a	102
Charles T Miller Hospital[1, 3, 150]	St Paul	K Ikeda	124	5,446	5,171	155 887		1	4^p	185
St Joseph's Hospital[1, 3]	St Paul	E M James	141	4 622	4,495	109 881	1	2	2^p	163
St Louis County Hospital[1, 3]	Clayton Mo	J Wyatt	166	1 047	829	109,259	1	3	3	275
Kansas City General Hospital No 1[1, 3]	Kansas City, Mo	V B Buhler	404	2 195	1,820	455 503	2	5	4^p	150
Menorah Hospital Medical Center	Kansas City, Mo	H Cohen	161	4 280	3 202	126,576	1	3	3^p	200
Research Hospital[1, 3]	Kansas City, Mo	H K B Allebach	104	4 531	4,225	157 255	1	3	4^p	175
St Joseph Hospital[3]	Kansas City Mo	R W Kerr	177	6 881		194,858	1	2	3^a	200
St Luke's Hospital[1, 3]	Kansas City Mo	F C Helwig	208	12 105	10 895	132,163	2	5	4^p	175
St Mary's Hospital[1, 3]	Kansas City Mo	A Lapi	224	4 309	8 631	109,955		2	2^a	200
Barnes Hospital[1, 3]	St Louis	R A Moore	618	7,381	7,381	436,152	2	13	4^p	50
DePaul Hospital[1, 3]	St Louis	J D Bauer							2^a	200
Homer G Phillips Hospital[1, 3]	St Louis	J A Saxton	274	2 902	2 752	183,586	2	4	2^p	138
Jewish Hospital[1, 3-4]	St Louis	H T Blumenthal	207	5 684	4 061	147 889	1	2	4^p	100
Missouri Baptist Hospital[1, 3]	St Louis	W R Platt	141	4 517	8 344	94 632	1	2	3^p	175
St John's Hospital[1, 3]	St Louis	H V Allen	147	3,962	3,220	133 120			2^p	
St Louis City Hospital[1, 3]	St Louis	J Saxton	556	8 552	3 019	224,663	3	6	4^p	137
St Mary's Group of Hospitals[1, 3]	St Louis	H Pinkerton	278	5,750	4 712	356 409	2	8	3	200
Montana Deaconess Hospital[1, 3]	Great Falls Mont	E J Eichwald	86	755	711	40 178	1	1	2^p	
Lincoln General Hospital[1, 3]	Lincoln Neb	F H Tanner	109	3,853	8,353	72 044	1	1	1	200
Bishop Clarkson Memorial Hospital	Omaha	M E Foster, Jr	93	5 058	3 410	92,794	1	1	3^p	175
Creighton Memorial St Joseph's Hospital[3]	Omaha	B C Russum	151	15,372	13 783	164 191	1	4	4^p	175
Nebraska Methodist Hospital[1-3, 159]	Omaha	J R Schenken	106	6 304	6,304	75 500		4	4^p	200
University of Nebraska Hospital	Omaha	J P Tollman	110	1 669	1,669	96 933	1	4	4^p	
Mary Hitchcock Memorial Hospital[1, 3]	Hanover, N H	R E Miller	172	3 753	3,453	147,473	1	4	4^p	170
Elliott Hospital[1, 3]	Manchester, N H	S M Brooks	99	1 836	1,251	39 072	1	1	1^p	100
Atlantic City Hospital[1, 3]	Atlantic City N J	M Ackerman	109	2,231	2 231	56,134	1	1	2^p	250
Cooper Hospital[1-3]	Camden, N J	W T Read Jr	301	8 509	3,556	181,074	2	2	4^p	200
West Jersey Hospital[1, 3]	Camden, N J	A S Conston	120	2,413	2 401	119,101	1	3	3^a	200
Medical Center-Jersey City Hospital[1, 3]	Jersey City, N J	A M Gnassl	259	9 002	9,002	278,267	2	3	3^a	100
Monmouth Memorial Hospital[1, 3]	Long Branch, N J	A Yaguda	131	3,425	3,009	105,361	1	2	3^p	200
Mountainside Hospital[1, 3]	Montclair, N J	J L Work	181	4 458	4 366	143 643	2	3	3^p	175
Morristown Memorial Hospital[1, 3]	Morristown, N J	H F Luddecke	155	8 684	3,852	79 324	1	2	2^a	185
Burlington County Hospital[1-3]	Mt Holly N J	J T Bauer	110	943	943	32 637	1	1	1^a	
Harrison S Martland Medical Center[1, 3]	Newark, N J	H S Martland	278	1,949	3,286	197,060	2	4	3^a	150
Hospital of St Barnabas and for Women and Children[1, 3]	Newark, N J	W G Bernhard	132	2 956	2 528	8,290	1	3	3^p	150
Newark Beth Israel Hospital[1, 3]	Newark N J	L Goldman	213	5,040	4,980	71 305	1	1	4^p	75
Presbyterian Hospital[1-3]	Newark, N J	S A Goldberg	187	10,755	4,522	113,260	1	1	2^p	125
St Michael's Hospital[1, 3]	Newark, N J	S J Rose	140	4,281	4,251	160,514	2	2	4^p	125
Orange Memorial Hospital[1, 3]	Orange N J	A R Abel	180	8 216	3,216	91,875	1	2	4^p	125
Passaic General Hospital[1, 3]	Passaic, N J	J R Gannon	117	2 646	2,289	76 194	1	3	3^p	200
St Mary Hospital[1, 3]	Passaic, N J	R Brill	95	2 232	2 232	64 126	1	2	2^p	200
Paterson General Hospital[1, 3]	Paterson, N J	A H Davis	129	4,508	4 317	59 951	1	2	2^p	150
St Joseph Hospital[1-3]	Paterson, N J	G B Kim	102	8 460	[illegible],460	84,147	1	2	3^p	150
Muhlenberg Hospital[1, 3]	Plainfield, N J	H Hansen	144	3 089		78 034	1	1	1^p	200
Mercer Hospital[1, 3, 257]	Trenton, N J	T K Rathmell	104	1 856	2 002	102 740		2	4^p	150
Albany Hospital[1, 3]	Albany, N Y	A W Wright	430	7 957	7,957	242 513	1	4	4^p	75
Bender Laboratory Hospitals[1, 3]	Albany, N Y	J J Clemmer	202	7 539	7 530	326,340	2	5	4^p	250
Anthony N Brady Maternity Home	Albany, N Y									
Memorial Hospital	Albany, N Y									
St Peter's Hospital	Albany, N Y									

Numerical and other references will be found on pages 414 to 416

17 PATHOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Binghamton City Hospital[1, 3]	Binghamton N Y	T A Cope Jr	182	2,679	96	100,520	1	1	4P	150
Beth El Hospital[1, 3]	Brooklyn	D Spain	80	4,339	4,319	255,309	2	5	4P	150
Brooklyn Hospital[1-3]	Brooklyn	J A De Veer	181	4,500	4 450	134 450	1	4	4P	100
Coney Island Hospital[1, 3]	Brooklyn	H Fink	153	1,278	1,278	141,356	2	5	4P	
Cumberland Hospital[1, 3]	Brooklyn	S H Polayes	163			14 053	1	4	4P	
Greenpoint Hospital[1, 3]	Brooklyn	R Aronoff	125	2 020	1,957	165,125	1	2	3P	98
Jewish Hospital[1-3]	Brooklyn	D Grayzel	262	6 739	5,557	142 041	2	6	4P	75
Kings County Hospital[1, 3]	Brooklyn	P Fitzgerald	1,235	12,962	12,962	97,545	2	4	4P	98
Long Island College Hospital[1, 3]	Brooklyn	T G Morrione	165	3 625	3,625	142,264	1	4	4P	
Maimonides Hospital[1, 3]	Brooklyn	A Kantrowitz	202	4 729	4 729	256,535		5	3P	75
Methodist Hospital[1, 3]	Brooklyn	B S Herr Jr	183	3,368	3,360	103 712	1	3	3P	75
Norwegian Lutheran Deaconess Home and Hosp[1, 3]	Brooklyn	E S Wedding	132	2 078	2 078	57 721	2	2	1P	100
St Catherine Hospital[1, 3]	Brooklyn	M Wachstein	132	1 713	1 713	105,259	2	2	2P	
St Mary's Hospital[1, 3]	Brooklyn	W Moitrier Jr	76	2 120	2,120	68,658	1	1	1P	175
Buffalo General Hospital[1, 3]	Buffalo	K L Terplan	363	6 125	16	6 128	2	2	2P	125
Deaconess Hospital[1-3]	Buffalo	S Tannhauser	85	16 659	13,128	97 760	1	1	3P	250
Edward J Meyer Memorial Hospital[1, 3]	Buffalo	S Sanes	356	4 152	4 172	207	1	3	2a	179
Millard Fillmore Hospital[1, 3]	Buffalo	A V Postoloff	284	19 130	19,130	259 041	2	4	2a	
Flushing Hospital and Dispensary[1, 3]	Flushing N Y	J Werne								
		I Carrow	154	6 492	11 684	103,322	1	3	3P	200
Meadowbrook Hospital[1]	Hempstead N Y	T J Curphey	695	7 456	7,371	250 427	3	9	4P	225
Mary Immaculate Hospital[1, 3]	Jamaica, N Y	M. Bevilacqua	71	2,957	2 407	146 495	1	2	2P	120
Queens General Hospital[1, 3]	Jamaica, N Y	A Angrist	596	8 771	8 062	554,919	4	5	4P	98
Charles S Wilson Memorial Hospital[1, 3]	Johnson City N Y	A Kosinski	203	5 470	4 010	156 093	1	4	4P	200
Ulster County Tuberculosis Hospital	Kingston N Y	H. Derman	76	3,577	3,577	15,873			2P	
St John's Long Island City Hosptial[1, 3]	Long Island N Y	D A Sunderland	111	919	919	62 665	1	1	3a 1P	150
Nassau Hospital[1, 3]	Mineola N Y	R. A Durham	102	3,300	3,240	78 000	1	1	1P	170
Mount Vernon Hospital[3]	Mt Vernon N Y	J G Sharnoff	96	4 172	4 172	84,852	1	1	3P	150
New Rochelle Hospital[1, 3]	New Rochelle N Y	W C Schraft Jr	123	4,582	4,562	106,523	1	1	1P	175
Bellevue Hospital Center Division III—New York Univ College of Medicine[1, 3]	New York City	S Wilens	760	6 776	6 776	64,848	1	3	4P	98
Beth Israel Hospital[1, 3]	New York City	W Antopol	141	3,884	3,884	181,572	2	2	4P	185
Bronx Hospital[1, 3]	New York City	J Felsen	74	5 780	6,253	105 158	1	2	2P	100
Doctors Hospital[1, 3]	New York City	J R Lisa	67	3,962	2 679	73,528	1	1	1a	200
Flower and Fifth Avenue Hospitals[1, 3]	New York City	F D Speer	152	5 426	3,932	100,980	1	4	4P	
Fordham Hospital[1, 3]	New York City	L. J Millman	639	4 010	4 010	91,933	3	3	2	98
Francis Delafield Hospital[1-3]	New York City	H P Smith	275	5 077	5 077	93,234	1	4	2a	
Goldwater Memorial Hospital[1, 3]	New York City	J Rosenthal	101	3 435	3,435	87,020	1	3	3P	99
Harlem Hospital[1, 3]	New York City	V Dolgopol	329	5 776	5 766	377 449	1	3	4P	98
Hospital for Joint Diseases[1, 3]	New York City	H. L Jaffe	44	2 415	2,415	84,531	1	1	1a	70
Jewish Memorial Hospital[1, 3]	New York City	A Angrist	94	2,210	2,210	94,936	1	1	1P	150
St John's Riverside Hospital[1]	Yonkers, N Y								1P	
Lebanon Hospital[1, 3]	New York City	J C Ehrlich	113	3,631	3,631	110,844		2	2P	100
Lenox Hill Hospital[1, 3]	New York City	G L Rohdenburg	180	4 437	5,168	5 192	1	1	1a	180
Lincoln Hospital[1, 3]	New York City	H. Lepow	200	2,675	2,675	192,010	1	2	3	99
Memorial Center for Cancer and Allied Diseases[1, 3]	New York City	F W Stewart	455	20 708	20 708	364,625		10	3a	300
Metropolitan Hospital[1, 3]	New York City	F Speer	307	4 062	4 062	255,304	1	8	2a	98
Montefiore Hospital[1, 3]	New York City	H. Zimmerman	374	3,655	3,655	138,354	3	6	3P	75
Morrisania City Hospital[1, 3]	New York City	M. R Dacso	224	2,230	4 441	174,394	1	2	4P	
Mount Sinai Hospital[1, 3]	New York City	P Klemperer								
		G Shwartzman	349	7 633	7,633	265,500	2	6	3a	50
New York City Hospital[1-3]	New York City	A. Blaustein	193	1,624	1,616	141 624	1	4	4P	98
New York Hospital[1, 3]	New York City	J G Kidd								
		J Pearce	429	7 426	758	437 427	1	5	4P	34
New York Polyclinic Hospital[1, 3]	New York City	D J Di Maio	95	8,896	8,896	71 009	1	2	2P	100
New York University Bellevue Medical Center University Hospital[1, 3]	New York City	M Richter	103	5,851	4,960	673 044	2	4	4P	80
Presbyterian Hospital[1, 3]	New York City	H P Smith								
		R. Lattes	565	7 000	7 000	7 000	3	9	3a	
Roosevelt Hospital[1, 3]	New York City	W W Brandes	173	3 709	3 709	173 443	2	2	2a	116
St Barnabas Hospital for Chronic Diseases[1-3, 223]	New York City	H K Russell	108	1,321	1,321	74,213	1	2	2P	200
St Clare's Hospital[1, 3]	New York City	J M. Ravid	98	10,396	10,396	78,345	1	2	1P	125
St Luke's Hospital[1, 3]	New York City	C F Begg	202	3 404	3 404	178,176	1	4	4P	75
St Vincent's Hospital[1, 3]	New York City	A. Rottino	324	3 639	3 639	226,290	1	2	2a	50
United Hospital[1, 3]	Port Chester N Y	M Loder	84	3 710	3 630	84,252	1	1	1P	200
Genesee Hospital[1, 3]	Rochester N Y	J N Abbott	210	4,040	4 000	146,103	1	1	3a	75
Rochester General Hospital[1, 3]	Rochester, N Y	M. G Bohrod	316	6,518	4,888	128,273	2	8	4P	100
St Mary's Hospital[1, 3]	Rochester, N Y	J Adler	227	3 740	3 640	115 725	2	3	4P	
Strong Memorial Rochester Municipal Hospitals[1, 3]	Rochester N Y	G H Whipple	634	5 069	5 069		4	5	3a	42
Ellis Hospital[1, 3]	Schenectady N Y	E Kellert	183	5 004	5 004	232,255	1	3	3P	175
Staten Island Hospital[1, 3]	Staten Island N Y	V Altmann	103	1,663	1 663	55 690	1	2	1	200
St Joseph's Hospital[1, 3]	Syracuse N Y	H. J Dick	124	3,862	3 862	120 751	1	1	1P	191
State University of New York Medical Center[1]	Syracuse N Y	J H Ferguson	563	16,105	13,399	131,506	1	4	2a	191
Samaritan Hospital[1, 3]	Troy N Y	C. G Burn	140	2 629	2,536	50 408	1	2	1	250
Utica State Hospital[1, 3]	Utica N Y	N M. Levine	44	95	95	21 657			4P	
Grasslands Hospital[1, 3]	Valhalla N Y	V A Bradess	244	1,974	1,974	114 751	1	3	4P	150
Knickerbocker Hospital[1, 3]	New York City	W Finkelstein	356			62 000	1	1	1a	
North Carolina Memorial Hospital[1]	Chapel Hill, N C	K. M. Brinkhous	163	8,252	8,252		2	6	4P	145
Charlotte Memorial Hospital[1, 3]	Charlotte N C	P Kimmelstiel	160	7 007	6,845	174 918	1	3	4P	200
Duke Hospital[1, 3, 29]	Durham N C	W O Forbus	340	8 405	8 405	340	3	12	4	50
Watts Hospital[1, 3]	Durham N C	J U Gunter	67			145 131		1	1a	100
North Carolina Baptist Hospital[1, 3]	Winston Salem N C	R P Morehead	216	29,574	29,574	264,877	4	7	4P	125
City Hospital[1, 3]	Akron Ohio	L Catron	346	7,551	7,551	243,549	1	3	2P	235
Peoples Hospital[1, 3]	Akron Ohio	G R Dochat	189	5,142	4,194	180,551	1	1	2P	250
Aultman Hospital[1, 3]	Canton Ohio	D G Henderson	259	4 008	4 008	190 096	3	3	4P	225
Bethesda Hospital[1, 3]	Cincinnati	J B Hamblet	119	4,512	3 434	38,947	1	8	3P	
Christ Hospital[1]	Cincinnati	P N Jolly	173	4,298	4,181	146,293	1	1	1	200
Cincinnati General Hospital[1, 3]	Cincinnati	E A Gall	633	3,809	3,863	135 152	3	8	4P	
Good Samaritan Hospital[1-3]	Cincinnati	W T Collins	231	10 789	4,844	170,965	1	2	2a	175
Jewish Hospital[1, 3]	Cincinnati	P Wasserman	234	6,235	5 721	192,583	1	4	4P	145
City Hospital[1, 3]	Cleveland	T D Kinney	366	2,351	2,351	293,399	1	8	4P	140
Cleveland Clinic Hospital[1, 3]	Cleveland	J B Hazard	167	7 442	7 442	490 042	2	6	4P	175
Lutheran Hospital[1, 3]	Cleveland	W Sinclair Jr	95	2,803	2,803	72,913	1	1	1a	175
Mount Sinai Hospital[1, 3]	Cleveland	H Goldblatt	219	5,520	5,520	377 097	1	4	4P	215
St Luke's Hospital[1, 3]	Cleveland	R Dominguez	247	5 771	5 443	234,518	1	4	4P	120
St Vincent Charity Hospital[1, 3]	Cleveland	J S Mackrell Jr	102	4 063	6,904	126,355	1	1	1P	210
University Hospitals[1, 3]	Cleveland	A R Moritz	469	8 401	8 401	120,322	3	[illegible]	4P	125
Children's Hospital[1, 3]	Columbus Ohio	W Newton				76,952	1	1	2P	
Grant Hospital[1, 3]	Columbus Ohio	B H. Hurd	165	4,192	2,935	67,256	1	2	1a	250
Ohio State University Hospitals University Hospital[1, 3]	Columbus Ohio	E Von Haam	399	20,257	20,257	377 840	2	9	4P	150

Numerical and other references will be found on pages 414 to 416

17. PATHOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
White Cross Hospital [1]	Columbus, Ohio	R J Johansmann	141	16,508	15,508	179,791	1	2	4P	325
Miami Valley Hospital [1, 3]	Dayton, Ohio	M Oosting	532	10,391	10 891	200 925	1	8	4P	165
Huron Road Hospital [1, 3]	East Cleveland	E Goodsitt	163	5,240	5 240	137,022	1	4	4P	210
Mercy Hospital [1, 3]	Hamilton, Ohio	K E Lande	184	1,541	1,541	101,276	1	1	1a	150
St Rita's Hospital [1, 3]	Lima, Ohio	C L Blumstein	147	9,526	7,106	100,397	1	4	4P	225
Mercy Hospital [1, 3]	Toledo, Ohio	E L Burns	203			139 189	1	8	4P	250
St Vincent's Hospital [1-3]	Toledo, Ohio	M F Vidoli	209	5,581	5,581	166 026	1	1	2a	225
Toledo Hospital [1, 3]	Toledo, Ohio	B Steinberg	165	4,679	4,453	117,026	1	4	4P	200
St Elizabeth Hospital [1-3]	Youngstown, Ohio	J LoCricchio	140	6 669	5,846	123,375	1	1	4P	300
Youngstown Hospital [1, 3]	Youngstown, Ohio	A E Rappoport	446	6,535	6 535	231,177	2	8	4P	
University Hospitals [1-3]	Oklahoma City	H Hopps	220	3 537	3,272	156 698	2	5	4P	95
Hillcrest Medical Center [1]	Tulsa, Okla	L Lowbeer	128	5 351	4 151	112,136	2	4	2P	
St John's Hospital [1, 3]	Tulsa, Okla	E E Palik	157	5,317	5,317	16 426	1	4	4P	
Emanuel Hospital [1, 3]	Portland, Ore	V D Sneeden	179	5,784	4 437	102,259	1	1	1a	175
Good Samaritan Hospital [1-3]	Portland, Ore	W L Lehman	321	6 606	5,789	219 617	2	6	4P	175
Providence Hospital [1, 3]	Portland, Ore	J Minckler	246	7 335	5,750	165,000	1	4	4P	175
St Vincent's Hospital [1, 3]	Portland, Ore	F R Menne	204	10,264	9,049	216,550	1	4	4P	175
University of Oregon Medical School Hospitals and Clinics [1-3]	Portland Ore	W C Hunter R Grondahl	413	3,249	3 249	200,184	4	8	4P	55
Abington Memorial Hospital [1-3]	Abington, Pa	J Elman	172	3,054	3,035	209 978	1	4	4P	100
Allentown Hospital [1, 3]	Allentown, Pa	J J Wenner	252	3,461	3,160	182 998	1	2	4P	225
Sacred Heart Hospital [1-3]	Allentown Pa	D E Stader	111	6,531	5 942	142,469	1	1	2a	225
St Luke's Hospital [1, 3]	Bethlehem, Pa	E J Benz	224	2 695	2,260	99,292		2	4P	275
Bryn Mawr Hospital [1, 3]	Bryn Mawr Pa	M M Strumia	153	4,429	4,303	175 973	1	4	4P	100
Chester Hospital	Chester, Pa								1P	
George F Geisinger Memorial Hospital [1, 3]	Danville Pa	H F Hunt	118	2,774	2 700	122,957		2	4P	125
Fitzgerald Mercy Hospital [1, 3]	Darby, Pa	A Valdes Dapena M Porter	105	1,939	1,939	99 458	2	6	3P	200
Hamot Hospital [1, 3]	Erie Pa	E L Armstrong	173	6,390	5,390	168 917	2	4	4P	200
St Vincent's Hospital [1, 3]	Erie Pa	R B Eisenberg	136	2,691	2,680	155,333	1	4	4P	100
Lancaster General Hospital [1]	Lancaster, Pa	W M O Donnell	170	3 368	3,368	150 000	2	4	2a	200
St Joseph's Hospital [1]	Lancaster, Pa	E E Ziegler	150	5,486	5,486	93,147	1	2	2c	300
Albert Einstein Medical Center										
Northern Division [1, 3]	Philadelphia	H Brody	222	4 412	4,412	175,000	3	3	2P	200
Southern Division [1, 3]	Philadelphia	A Rubenstone	164	2,771	2 771	158 351	4	4	4P	150
Episcopal Hospital [1, 3]	Philadelphia	W P Belk	107	2,352	14,975	158,297	1	1	4P	100
Frankford Hospital [1, 3]	Philadelphia	W L C Spaeth	127	1,703	1,703	47,529	1	1	2a	300
Germantown Dispensary and Hospital [1, 3]	Philadelphia	F B Lynch, Jr	206	8 032	2,425	99 376	1	2	4P	150
Graduate Hospital of the University of Pennsylvania [1, 3]	Philadelphia	A Valdes Dapena	121	3,125	3 125	173 021	8	8	8P	100
Hahnemann Medical College and Hospital [1, 3]	Philadelphia	C G Tedeschi	359	7,567	7,567	254,795	6	6	4P	
Hospital of the University of Pennsylvania [1, 3]	Philadelphia	R Horn R Norris	338	8,857	8,857	351,009	3	12	4P	150
Hospital of the Woman's Med College of Pennsylvania [1-3]	Philadelphia	M A Geiss	62	1,338	1,335	1,339	1	1	3P	
Jefferson Medical College Hospital [1, 3]	Philadelphia	P A Herbut	273	10,179	10,179	300,874	2	8	4P	150
Lankenau Hospital [1, 3, 20]	Philadelphia	C E Brown	102	3 055	3 055	126,063	2	2	4P	100
Pennsylvania Hospital [1, 3]	Philadelphia	A R Crane	205	5 151	20 737	835,359	4	4	4P	100
Philadelphia General Hospital [1, 3]	Philadelphia	J H Clark	905	5,202	5,157	527,797	3	7	4P	113
Presbyterian Hospital [1, 3]	Philadelphia	R P Custer	107	3 260	3 260	140 961	2	7	4P	100
Temple University Hospital [1, 3]	Philadelphia	E E Aegerter	222	14 238	14,238	606 173	2	8	4P	
Allegheny General Hospital [1-3]	Pittsburgh	R C Grauer	162	4,385	4 385	156 689	4	4	4P	
Children's Hospital [1, 3]	Pittsburgh	H Fetterman	126	620	614	150 997	1	2	1P	250
Mercy Hospital [1, 3]	Pittsburgh	H H Permar	144	5,985	5 386	154 414	1	4	4P	175
Montefiore Hospital [1, 3]	Pittsburgh	K Y Yardumian	169	4 044	8,503	122,538	3	3	3P	250
Presbyterian Hospital [1, 3]	Pittsburgh	E L Heller	142	4,838	4 400	118 139	1	3	3	125
St Francis Hospital [1, 3]	Pittsburgh	R C Hamilton	172	2 439	2 429	174 419	1	3	4P	150
Western Pennsylvania Hospital [1, 3]	Pittsburgh	R G McManus	202	5,161	5,161	166 393	4	4	4P	225
Community General Hospital [1, 3]	Reading, Pa	H S Cook	104	1,875	1,850	52 512	1	1	1a	300
Reading Hospital [1-3]	Reading Pa	W P Jennings	309	8,631	3 654	153 534	1	2	4P	225
St Joseph's Hospital [1, 3]	Reading, Pa	G Desjardins	175	2,914	2,037	118 013	1	4	4P	250
Robert Packer Hospital [1, 3]	Sayre Pa	C H De Wan	180	3 602	3 475	200,491	1	2	3P	150
Scranton State Hospital [1-3]	Scranton, Pa	G A Clark	99	2,287	1,573	93,781	1	1	2P	266
Wilkes Barre General Hospital [1]	Wilkes Barre Pa	C E Rodriguez	134	2,815	2 763	87,234	1	2	2a	225
Williamsport Hospital [1]	Williamsport Pa	M G Colvin	130	4 498	3 909	134,314	1	3	3P	
York Hospital [3]	York Pa	L C Pusch	161	2 902	2,902	113,191	1	2	4P	250
Rhode Island Hospital [1-3]	Providence, R I	H Fanger	866	8,625	8 825	219,874	8	0	4P	83
Roper Hospital [1, 3-24]	Charleston, S C	K M Lynch	286	8 625	3 509	219 672	2	0	4P	150
Greenville General Hospital [1-3]	Greenville S C	E A Dreskin	197	5 395		138,330	1	3	3P	150
Baroness Erlanger Hospital [1-3]	Chattanooga, Tenn		205	9,109	9,088	222 772	2	3	2c	
Saint Mary's Memorial Hospital [1-3]	Knoxville, Tenn	G S Mahon	81	4,141	4,185	78,280	1	2	2P	300
Baptist Memorial Hospital [1-3]	Memphis Tenn	M L Trumbull	227	10 404	9,059	113 906	1	4	4P	100
John Gaston Hospitals [1-3]	Memphis, Tenn	D H Sprunt	678	5,497	5,497	107,176	2	12	4P	75
Methodist Hospital	Memphis, Tenn	W W Tribby	111	8,103	7,127	165 626	1	1	1P	100
St Joseph Hospital [1-3]	Memphis, Tenn	W W Hurteau	185	4,686	4,435	143,909	3	3	2a	200
George W Hubbard Hosp of Meharry Med Col [1-3]	Nashville, Tenn	J R Cuff	119	1,406	1,400	119	2	2	2P	
Nashville General Hospital [1, 3]	Nashville, Tenn	W A Demonbreun	92	1 881	1,735	120,147	2	4	3P	100
Vanderbilt University Hospital [1-3]	Nashville, Tenn	E W Goodpasture	233	4,652	4,519		2	5	3a	50
Brackenridge Hospital [1-3]	Austin, Texas	S W Bohls	81	2,381	2 033	44 719	1	1	2a	200
Baylor University Hospital [1-3]	Dallas, Texas	J Hill	190	11,960	11,960	246 010	1	4	4P	105
Parkland Hospital [1-3]	Dallas, Texas	E E Muirhead	398	8 048	6,851	316,495	1	2	4P	125
St Paul's Hospital [1-3]	Dallas, Texas	J L Goforth	160	9,603	7,403	211 623	2	8	4P	125
Harris Hospital [1-3]	Fort Worth, Texas	O T Ashworth C D Fitzwilliam	127	8,867	8,077	181 083	2	2	4P	300
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	R H Rigdon	345	5 260	5 002	199,699	2	0	4P	150
Hermann Hospital [1-3]	Houston, Texas	W G Brown	252	8,153	8,036	288 437	1	4	4P	100
Jefferson Davis Hospital [1]	Houston, Texas	S A Wallace	372	19,247	14,350	382 431	1	4	4P	50
St Joseph's Hospital [1, 3]	Houston, Texas	P M Marcuse	145	6,457	5 454	250 549	1	2	4P	225
University of Texas M D Anderson Hospital for Cancer Research [1-3]	Houston, Texas	W O Russell	57	2 982	2 982	75,292	2	12	4P	
Baptist Memorial Hospital [1-3]	San Antonio, Texas	A O Severance	118	8 015			1	4	4P	200
Robert B Green Memorial Hospital [1-3]	San Antonio, Texas	A O Severance	176	1,311	1,242	85 623	1	2	2P	125
Santa Rosa Hospital [3]	San Antonio, Texas	J M Moore	258	4,181	3,735	151,254	1	3	3P	200
St Benedict's Hospital [1-3]	Ogden, Utah	R C Ellis	79			53 482	1	1	1P	250
Dr W H Groves Latter Day Saints Hospital [1-3]	Salt Lake City	J H Carlquist	180	6 472	4,165	6 509	1	1	1P	[illegible]
Holy Cross Hospital [1, 3]	Salt Lake City	C McNeil	86	4,333	3,017	88 730	1	2	1P	[illegible]
Salt Lake County General Hospital [1-3]	Salt Lake City	R H Follis, Jr	220	1,672	1,624	70,477	1	3	4P	125
Bishop DeGoesbriand Hospital [1-3]	Burlington, Vt	E Stark	64	1,331	1,331	36 857	1	2	1P	100
Mary Fletcher Hospital [1, 3-28]	Burlington, Vt	E Woll	150	2,682	2,670	65,322	2	5	2P	100
University of Virginia Hospital [1, 3]	Charlottesville, Va	J R Cash O B Bobbitt	237	9,817	9,817	9,817	2	6	4P	150
Memorial Hospital [1]	Danville, Va	J W Hooker	112	3 389	8 889	69 490	1	1	3P	
Lynchburg General Hospital [1-3]	Lynchburg, Va	S M Boutin, Jr	77	2 254	1,715	45,964	1	1	1P	

Numerical and other references will be found on pages 414 to 416

17 PATHOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
Riverside Hospital	Newport News Va	W H Talbot	86			78,500	1	1	1[a]	250
De Paul Hospital[1, 2]	Norfolk Va	A F Strauss	189	5 071	4,973	167,573	1	8	2[a]	200
Norfolk General Hospital[1, 2]	Norfolk Va	A J Rawson E D Levy	266	21,317	10,326	179 675	1	8	4[p]	200
Medical College of Virginia Hospital Division[1, 2, 1-]	Richmond Va	F L Apperly H G Kupfer	633	8,516	8 046	487 400		11	4[p]	75
Doctors Hospital[1, 2]	Seattle	G E Tooley	144			84,206	1	1	2[a]	125
King County Hospital, Unit No 1 (Harborview)[1]	Seattle	C R Jensen	606	3 448	3 173	225 992	1	1	4[p]	110
Providence Hospital[1]	Seattle	D G Mason	211	5,225	3,907	120,568	1	2	2[a]	200
Swedish Hospital[1, 2]	Seattle	P Lund	206	6,399	6,221	106 829	1	4	4[p]	
Deaconess Hospital[1, 2]	Spokane Wash	J D MacCarthy	256			100 034	1	3	4[p]	175
Sacred Heart Hospital[1, 2]	Spokane Wash	J E Hill	207	6,187	6 100	146 061	2	2	2[a]	200
St Lukes Hospital[1, 2]	Spokane Wash	O O Christianson	85	4 062	3,351	128,397	1	1	2[a]	150
St Joseph Hospital[1-2]	Tacoma Wash	C R. McColl R T Vimont	132	4,267	4,134	77 766	2	4	2[a]	200
Tacoma General Hospital[1, 2]	Tacoma Wash	C P Larson	325	6 458	6,124	83 078	1	8	4[p]	200
Charleston General Hospital[1, 2]	Charleston W Va	W Putschar	107	2,267	2,250	67 611	1	1	4[p]	175
Ohio Valley General Hospital[1, 2]	Wheeling W Va	H G Little	123	4,594	4 879	63,296	1	3	3[p]	300
Madison General Hospital[1, 2]	Madison Wis	L McGary	99		4 465	96,960	1	2	4[p]	150
University Hospitals State of Wisconsin General Hospital[1]	Madison Wis	M. D Angevine W D Stovall	319	4 435	4,399	201,529	1	4	4[p]	
St. Joseph s Hospital	Marshfield Wis	H G Dangle	93	2 008	1,592	65 126	1	1	3[p]	300
Columbia Hospital[1, 2]	Milwaukee	G Ritchie	148			70,214	1	3	4[p]	195
Milwaukee County Hospital[1-2]	Milwaukee	J Lundseth	504	3,578	3 473	308 088	3	8	4[p]	208
Milwaukee Hospital[1, 2]	Milwaukee	E A Birge	126	5 088	3,853	103,314	1	1	3[p]	150
St Joseph s Hospital[1, 2]	Milwaukee	C H Altshuler	242	4,357	3 605	142 775	1	4	4[p]	200
St Mary s Hospital[1]	Milwaukee	S B Pessin	144	4 433	2,632	82,813	1	1	4[p]	200
Gorgas Hospital[1-2]	Ancon C Z	F E Council	313	3,270	3,155	329,563	1	4	4[p]	
Queen s Hospital[1, 2]	Honolulu T H	H. Civin	197	6,268	4,599	144,670	1	4	4[p]	125
Bayamon District Hospital	Bayamon P R	J E Taveras	443	4,379	1,925	151 109			2[c]	
San Juan City Hospital[1, 2]	San Juan P R	E Koppisch	195	1 709	1 709	244 790	1	1	3[a]	150

18 PEDIATRICS

The following services have been approved by the Council and the American Board of Pediatrics, through the Residency Review Committee for Pediatrics as offering acceptable training in the specialty

Hospitals 251, Assistant Residencies and Residencies 1 416

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY								
Letterman Army Hospital[1, 2, 66]	San Francisco	W M. Edwards	389	27			2	
Fitzsimons Army Hospital[1-66]	Denver	F F Simpson	661	13			2	
Army Medical Center[1, 2, 66, 67]	Washington D C	O C Bruton	1,200	17	2	4	2	
Brooke Army Medical Center[2-66, 250]	San Antonio Texas	J P Fairchild	1,284	60			2	
UNITED STATES NAVY								
U S Naval Hospital[1, 2]	Oakland Calif	D W Sherwood	1,101	11			2	
U S Naval Hospital[1, 2, 253]	Bethesda Md	T E Cone	630	11	4	4	2	
U S Naval Hospital[1, 281]	Chelsea Mass	M. Kurzrok	870	14	2	3	2	
U S Naval Hospital[1, 2]	Philadelphia				3	3	2	
DEPARTMENT OF HEALTH, EDUCATION AND WELFARE								
Freedmen s Hospital[1, 2, 62-64]	Washington D C	R B Scott	651	11	2	5	2	
NONFEDERAL								
Children s Hospital[1, 2, 212]	Birmingham Ala	J L Simpson	2 794	42	1	5	2	100
Jefferson Hillman Hospital[1, 2, 212]	Birmingham Ala	K. Hare	2,601	35	4	10	2	
Lloyd Noland Hospital[1, 2]	Fairfield Ala	G C McCullough	1,126	6	2	4	1	225
City Hospital	Mobile Ala	J H. Baumhauer	1,354	18	1	1	1	200
Maricopa County General Hospital[1-2]	Phoenix Ariz.	J Kruglick	1 096	45	0	1	2	
University Hospital[1-2]	Little Rock Ark	K. Dodd	670	68	3	4	2	120
Kern General Hospital[1]	Bakersfield Calif	J Almklov	1,241	32	2	6	2	325
San Joaquin General Hospital[1]	French Camp Calif	W T Auld	1 017	25	1	1	1	235
General Hospital of Fresno County[1, 2]	Fresno Calif	J E Young	2,437	32	2	2	1	231
Seaside Memorial Hospital[1, 2]	Long Beach Calif	S S Woolington	2 437		1	1	1	150
California Babies and Children s Hospital[2, 28]	Los Angeles	T Birnberg	1,331		1	2	1	150
Children s Hospital[1, 2, 31-35]	Los Angeles	M. J Carson	8 035	140	9	23	2	200
Los Angeles County General Hospital[1]	Los Angeles	A H. Hurd	4,372	69	6	11	2	200
Queen of Angels Hospital[1, 2]	Los Angeles	D Goldstein	1,828	9	1	2	2	
White Memorial Hospital[1, 3-31]	Los Angeles	J A. Garrisi	658	13	2	4	2	
Children s Hospital of East Bay[1, 2, 3, 4]	Oakland Calif	H E Long	7,318	91	6	12	2	170
Highland Alameda County Hospital[1, 2, 231]	Oakland Calif	M. Schwartz	1,226	18	3	4	2	185
Kaiser Foundation Hospital[1, 2]	Oakland Calif	A King	1 655	39	6	6	1	175
San Diego County General Hospital[1, 2]	San Diego Calif	F H Fehlmann	950	11	1	1	1	
Children s Hospital[1, 2]	San Francisco	H E Thelander	2,355	9	3	5	2	150
Mount Zion Hospital[1, 2]	San Francisco	S J Robinson	1,278	4		1	1	150
St Mary s Hospital[1, 2]	San Francisco	R G Flood	1,956	5	1	2	2	150
San Francisco Hospital[1, 2]	San Francisco							
Stanford University Service		E H. Senz	491	8			2	175
University of California Service		M B Olney	518	9			2	175
Stanford University Hospitals[1, 2]	San Francisco	J A Anderson	535	25	3	6	2	80
University of California Hospital[1-2, 26, 27, 40]	San Francisco	W C Deamer	1,813	38		4	2	87
St John s Hospital[42]	Santa Monica Calif	A B Polson	1,156	42	1	1	2	175
Harbor General Hospital[1, 2, 31]	Torrance Calif	A. J Moss	1,300	20	3	5	2	200
Children s Hospital[1, 2, 51]	Denver	F H. Reynolds	4,141	74	6	9	2	
University of Colorado Medical Center								
Colorado General Hospital[1, 2, 22]	Denver	R H. Alway	583	38	8	14	2	150
Denver General Hospital[1-2, 22]	Denver	M Ginsburg	1 127	18			2	
Hartford Hospital[1, 2]	Hartford Conn.	J B Griggs	957	21	1	2	2	50
St Francis Hospital[1, 2, 58]	Hartford Conn	T F Murphy	873	33	2	3		100
Grace-New Haven Community Hospital[1, 2, 246]	New Haven Conn	M. J E Senn	1 085	40	6	10	2	50
Hospital of St Raphael[2]	New Haven Conn	P McAlenney	2,222	6	1	2	2	125
Waterbury Hospital[1]	Waterbury Conn	A. S Brown	2,320	5	1	2	1	225
Delaware Hospital[1-2]	Wilmington Del.	R. O Y Warren	2,115	33	2	4	2	150
Children s Hospital[1, 2-45]	Washington D C	E P Copeland	3,115	57	13	21	2	50

Numerical and other references will be found on pages 414 to 416

18 PEDIATRICS—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
District of Columbia General Hospital[1,3]	Washington, D C	L Hoeck	1,931	40	5	10	2	100
Georgetown University Hospital[1,3]	Washington, D C	F G Burke	1,036	16	2	4	2	
Providence Hospital[1,3]	Washington, D C	G Maksim	1,804	10	2	2	1	
Duval Medical Center[1,3,104]	Jacksonville, Fla	J K David, Jr	812	23	2	2	1	150
St Vincent's Hospital[1,3]	Jacksonville, Fla	H Carithers	2,382	19	1	1	1	135
Jackson Memorial Hospital[1,3-70]	Miami, Fla	W W Quillian	4,926	55	3	6	2	75
Crawford W Long Memorial Hospital[1,3,72]	Atlanta, Ga	L H Muse	1,128	17	5	6	2	110
Grady Memorial Hospital[1,3]	Atlanta, Ga	R W Blumberg	947	41	4	10	2	20
Henrietta Egleston Hospital for Children[1-3]	Atlanta, Ga	M H Roberts	1,123	15		3	1	150
University Hospital[1,3]	Augusta, Ga	H B O'Rear	1,675	34	1	2	2	100
Children's Memorial Hospital[1,3]	Chicago	J A Bigler	6 260	92	12	16	2	75
Cook County Hospital[1,3]	Chicago	A Levinson	7,845	414	15	15	2	60
Illinois Masonic Hospital[1,3]	Chicago	M R Jackson	1,743	1	1	1	1	115
Mercy Hospital[87]	Chicago	H W Elghammer	1,542	21	2	4	2	100
Michael Reese Hospital[1,3]	Chicago	B Kagan	6 545	151	5	9	2	75
Mount Sinai Hospital[1,3]	Chicago	P L Aries	2,741	43		2	2	
Presbyterian Hospital[1]	Chicago	H N Sanford	1,801	51	1	2	2	125
Provident Hospital[1,3]	Chicago	R N Jefferson	950	12	1	2	2	200
St Joseph Hospital[1-3]	Chicago	H Jacobs	1,168	8	1	1	1	200
St Luke's Hospital[1,3]	Chicago	A Biggs	1,182	12	1	2	2	60
University of Chicago Clinics[1,3]	Chicago	F H Wright	1,070	49	6	14	2	175
University of Illinois Research and Educational Hosps[1,3,87,88]	Chicago	H N Sanford	791	31	5	9	2	110
Evanston Hospital[1]	Evanston Ill	A L Newcomb	1,477	3	1	1	1	60
St Francis Hospital[1,3]	Evanston, Ill	N G Shaw	2,876	15	1	2	1	175
Little Company of Mary Hospital[1,3]	Evergreen Park Ill	E G Lawler	4,060	12	3	8	1	175
West Suburban Hospital	Oak Park Ill	C D Butler	2,075	15	1	1	1	225
St Francis Hospital[1,3]	Peoria Ill	J R Vonnachen	1,629	40	1	2	1	225
Indianapolis General Hospital[1-102]	Indianapolis	I Rosenbaum, Jr	882	18	1	2	2	300
Indiana University Medical Center[1]	Indianapolis	L T Meiks	1,812	90	5	11	2	165
St Vincent's Hospital[1-10]	Indianapolis	W E Brown	1,019	36	1	1	1	275
Raymond Blank Memorial Hosp for Children[1,3-107]	Des Moines Iowa	L F Hill	4 331	24	5	8	2	150
University Hospitals[1,3]	Iowa City	C D May	1,048	55	4	8	2	75
University of Kansas Medical Center[1,3]	Kansas City Kan	H Miller	1,178	51	4	8	2	
St Joseph Infirmary[1,3]	Louisville, Ky	H S Andrews	2 579	29	2	4	2	185
University of Louisville Hospitals								
Children's Hospital[1,3,111]	Louisville Ky	L T Davidson	4 324	93	10	19	2	75
Louisville General Hospital[1,3]	Louisville, Ky	L T Davidson	610	11	7	17	2	78
Charity Hospital of Louisiana								
Independent Unit[1]	New Orleans	W C Rivenbark	904	22	3	6	2	100
Louisiana State University Unit[1]	New Orleans	N K Ordway	1,697	36	7	14	2	100
Tulane University Unit[1]	New Orleans	R V Platou	1 084	50	7	14	2	100
Hotel Dieu—Sisters Hospital[1]	New Orleans	R Aleman	2,161	6	2	2	1	200
Southern Baptist Hospital[1,117]	New Orleans	J L Treadway, Jr	2 020	28	1	2	1	225
Touro Infirmary[1-118]	New Orleans	J D Russ	820	17	1	2	2	100
Confederate Memorial Medical Center[1]	Shreveport La	C H Webb	2,114	54	2	4	2	150
Central Maine General Hospital[1]	Lewiston Maine	H C Thacher	1,199	16		1	1	150
Baltimore City Hospitals[1,3]	Baltimore	H E Harrison	1,284	61	4	6	2	50
Johns Hopkins Hospital[1,3,119]	Baltimore	F F Schwentker	1,745	130		14	2	20
Mercy Hospital[1-3]	Baltimore	F B Smith	612	11	1	2	1	275
Sinai Hospital[1,3]	Baltimore	H H Gordon	391	64	3	6	2	110
Union Memorial Hospital[1,3]	Baltimore	W C Stifler Jr	562	9	2	2	1	115
University Hospital[1,3,121,130]	Baltimore	J F Bradley	758	61	3	8	2	50
Boston City Hospital[1,3]	Boston	E Friedman	4 975	38	9	12	2	112
Boston Floating Hospital[1,3]	Boston	J M Baty	1,230	27	8	9	3	50
Children's Medical Center[1,3]	Boston	C A Janeway	3,188		8	22	3	42
Massachusetts General Hospital[1,3-62]	Boston	A M Butler	1 092		5	6	2	
Worcester City Hospital[3]	Worcester Mass	J Cohen	1 051	6	2	2	1	215
University Hospital[1-3]	Ann Arbor Mich	I Wilson	1 934	28	12	22	2	140
Children's Hospital[1,3]	Detroit	P V Woolley, Jr	6,123	202	16	26	2	150
Harper Hospital[1,3,88]	Detroit	E E Martmer	2 289	36	2	4	1	225
Henry Ford Hospital[1,3,140]	Detroit	J A Johnston	1,621	18	4	8	2	225
Providence Hospital[1,3-85]	Detroit	L P Sonda	2 703	11	1	1	1	250
Hurley Hospital[1]	Flint Mich	L Jones	2 343	20	1	2	2	325
St Mary's Hospital[1-3]	Grand Rapids, Mich	J C Montgomery						
		C E Booher	2,466	35	1	1	1	200
Saginaw General Hospital[1,3]	Saginaw Mich	R M Heavenrich	3 148		1	2	2	325
Northwestern Hospital[1-3]	Minneapolis	N Bench	1,622	12	1	1	1	200
University of Minnesota Hospitals[1,3,150]	Minneapolis	I McQuarrie	1 960	115	8	16	2	162
Mayo Foundation[1-3]	Rochester, Minn	R L J Kennedy	3,897	9	10	27	2	150
Children's Mercy Hospital[1,3-101]	Kansas City Mo	J M Kantor	1,709	50	2	6	2	125
Kansas City General Hospital No 1	Kansas City Mo	G V Herrman	548	9	1	2	1	150
Homer G Phillips Hospital[1-3]	St Louis	P J White	2 088	84	6	14	2	138
Jewish Hospital[1,3]	St Louis	M Deutch	1 185	4		1	1	100
St Louis Children's Hospital[1,3-101]	St Louis	A F Hartmann	3,878	104	15	30	2	60
St Louis City Hospital[1,3]	St Louis	V Peden	2,144	46	6	8	2	137
St Mary's Group of Hospitals[1-3-101,102,10]	St Louis	P G Danis	2 195	40	4	8	2	65
Creighton Memorial—St Joseph's Hospital[3]	Omaha	J H Murphy	1 663	15	2	4	2	175
University of Nebraska Hospital[1,3]	Omaha	H M Jahr	529	12	3	5	2	
Mary Hitchcock Memorial Hospital[1-3]	Hanover, N H	C O Stewart	877	21	1	2	1	150
Cooper Hospital[1-3]	Camden, N J	V Del Duca	765	18	1	1	1	200
Medical Center-Jersey City Hospital[1,3]	Jersey City, N J	C P De Fuccio	1,999	5	3	6	2	66
Babies Hospital Coit Memorial[1,3]	Newark, N J	M Gregory	3,870	24		3	1	150
St Michael's Hospital[1,3,17]	Newark, N J	H A Murray	2,801	17	4	8	2	125
Albany Hospital[1,3]	Albany, N Y	P R Patterson	823	17	2	4	2	75
St Peter's Hospital[3]	Albany, N Y	H F Leahy	1,436	7	1	1	1	225
Beth El Hospital[1,3]	Brooklyn	B Schick	321	43	2	3	2	150
Brooklyn Hospital[1,3]	Brooklyn	T M Lamb	484		1	2	2	100
Coney Island Hospital[1,3]	Brooklyn	S Nussbaum	740	28	1	2	2	
Cumberland Hospital[1-3,184]	Brooklyn	J A Monfort	1,026	15	3	4		
Greenpoint Hospital[1-3]	Brooklyn	I Schiff	633	40	2	3	1	98
Jewish Hospital[1-3-184-200]	Brooklyn	B Kramer	1,474	31	5	10	2	75
Kings County Hospital								
County Division[1-3]	Brooklyn	L Mullin	1,271	27	4	6	2	75
University Division[1-3]	Brooklyn	R L Day	1 737	25	4	6	2	98
Long Island College Hospital[1,3]	Brooklyn	C A Weymuller	473	15	2	3	2	
Maimonides Hospital[1,3]	Brooklyn	J Rosenblum						
		M Palinsky	483	11		2	2	75
Methodist Hospital[1-3]	Brooklyn	W R Coles	504	26	1	2	1	75
Norwegian Lutheran Deaconess Home and Hospital[1,3]	Brooklyn	J A Monfort	698	27	1	2	1	100
St Catherine's Hospital[1-3]	Brooklyn	J P Lombard	937	6	2	6	1	
St John's Episcopal Hospital[1,3]	Brooklyn	J Battaglia	1,054	10	1	1	1	175
Wyckoff Heights Hospital[1,3]	Brooklyn	V Larkin	818	8	3	3	1	100

Numerical and other references will be found on pages 414 to 416

18 PEDIATRICS—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
Children's Hospital [1, 2]	Buffalo	M. I Rubin	9,972	166	6	20	2	75
Edward J Meyer Memorial Hospital [1, 3]	Buffalo	F J Gustina	1,950	25	2	4	2	179
Mary Imogene Bassett Hospital [1, 3]	Cooperstown N Y	T C Goodwin	356	9	1	1	1	143
Flushing Hospital and Dispensary [1-3]	Flushing N Y	H. T Vogel	4,666	51	1	2	1	200
Meadowbrook Hospital [1]	Hempstead N Y	E A Stanchi	731	58	2	4	2	225
Mary Immaculate Hospital [1, 3]	Jamaica N Y	A. A. Trivilino	557	11		1	1	120
Queens General Hospital [1, 3]	Jamaica N Y	H. A Reisman	1,008	87	3	6	2	98
Bellevue Hospital Center								
Division III—New York University College of Med [1, 3]	New York City	L. E Holt	1,500	50	6	7	2	98
Bronx Hospital [1, 3]	New York City	J H Lapin	701	28	1	2	2	75
Flower and Fifth Avenue Hospitals [1, 3]	New York City	L B Slobody	3 463	77	5	5	2	
Fordham Hospital [1, 3]	New York City	J Golomb	632	14	2	3	2	98
Harlem Hospital [1, 3]	New York City	H Cohen	753	38	2	4	2	98
Lenox Hill Hospital [1, 3]	New York City	A F Anderson	545	8	1	2	2	150
Lincoln Hospital [1, 3]	New York City	H. S Altman	1 457	56	2	5	2	65
Metropolitan Hospital [1, 3]	New York City	L B Slobody	853	23	4	8	2	95
Misericordia Hospital [1, 3]	New York City	F Castrovinci	848	3	2	2	1	100
Morrisania City Hospital [1, 3]	New York City	H D Pasachoff	805	32	2	4	2	
Mount Sinai Hospital [1, 3, 209]	New York City	H. L Hodes	2 132	37	5	9	2	50
New York City Hospital [1, 3]	New York City	E E Amerman	1 473	16	2	3	2	95
New York Hospital [1, 3, 191]	New York City	S Z Levine	1,549	90	9	17	2	
New York Infirmary [1, 3]	New York City	R M Bakwin	37		1	1	1	150
New York University-Bellevue Medical Center								
University Hospital [1, 3]	New York City	A De Sanctis	553	12	5	8	2	85
Presbyterian Hospital (Babies Hospital) [1, 3]	New York City	R. McIntosh	4 696	202	8	18	2	
Roosevelt Hospital [1, 3, 419]	New York City	E N Joyner III	616	4	2	4	2	116
St Clare's Hospital [1, 3]	New York City	C H O'Regan	836	19	1	2	2	125
St Luke's Hospital [1, 3, 209]	New York City	F C Hunt	752	7	2	4	2	75
St Vincent's Hospital [1, 3]	New York City	A. J Vignec	3,110	56	2	5	2	50
Sydenham Hospital [1, 3]	New York City	E Schiff	517	13	1	1	1	66
Genesee Hospital [1, 3]	Rochester N Y	J Glaser	936	32	1	2	2	75
Rochester General Hospital [1, 3]	Rochester N Y	F W Bush	648	14	1	1	1	100
Strong Memorial-Rochester Municipal Hosps [1, 3-12, 214]	Rochester N Y	W L Bradford	1 465	53		8	2	42
St Vincent's Hospital [1, 3]	Staten Island N Y	G W McCormick	1,553	7	1	1	1	150
Sea View Hospital [1, 3, 18]	Staten Island N Y	B Ratner	557		7	7	1	150
St Joseph's Hospital [1-3]	Syracuse N Y	G Murdock	2,527	11	2	2	1	191
State University of New York Medical Center [1]	Syracuse N Y	J B Richmond	5,266	44	4	10	2	191
Grasslands Hospital [1, 3]	Valhalla N Y	F D Barnes	403	8	1	3	2	150
North Carolina Memorial Hospital [1, 3]	Chapel Hill N C	E C Curnen	1 073	25	3	7	2	145
Charlotte Memorial Hospital [1, 3]	Charlotte N C	C H. Gay	597	9	1	2	2	200
Duke Hospital [1, 3, 231, 232]	Durham N C	W C Davison	1,111	45	6	8	2	42
Watts Hospital [1, 3]	Durham N C	A. H London	635	3		1	2	100
Rex Hospital [1, 3]	Raleigh N C	C R Bugg	1,108	4	1	1	1	250
Babies Hospital [1, 3]	Wilmington N C	J B Sidbury	1,834	9	2	2	1	
City Memorial Hospital [1, 3]	Winston-Salem N C	F A Blount	1 146	13	1	2	1	
North Carolina Baptist Hospital [1-3-233]	Winston Salem N C	R B Lawson	1,112	29	2	8	2	125
Children's Hospital [1, 3, 34]	Akron Ohio	J G Kramer	3,265	52	9	11	2	250
University of Cincinnati Hospitals								
Children's Hospital [1]	Cincinnati	A A. Weech			12	20	2	45
Cincinnati General Hospital [1, 3, 434]	Cincinnati	A A Weech	896	9	4	7	2	
Good Samaritan Hospital [1, 3, 37]	Cincinnati	L K Felter	2,134	19	1	1	1	175
City Hospital [1, 3]	Cleveland	F C Robbins	657	35	4	5	2	140
Cleveland Clinic Hospital [1, 3]	Cleveland	R D Mercer	630	10	1	3	2	175
St Luke's Hospital [1, 3]	Cleveland	R G Hodges	972	16	1	2	2	120
University Hospitals [1, 3, 442]	Cleveland	W Wallace	2,929	106	8	14	2	125
Children's Hospital [1, 3]	Columbus Ohio	E H Baxter	3 033		8	13	2	
Mercy Hospital [1, 3]	Toledo Ohio	L I Clark	325	32	1	1	1	250
University Hospitals [1, 3]	Oklahoma City	C Hall	1,278	50	3	6	2	95
Hillcrest Medical Center [1]	Tulsa Okla	R M. Wadsworth	2,855	13	1	2	2	
St John's Hospital [1, 3]	Tulsa Okla	D J Underwood	3 908	17	1	2	1	
University of Oregon Medical School								
Hospitals and Clinics [1, 3]	Portland Ore	A. J Hill	851	45	3	5	2	85
Abington Memorial Hospital [1, 3]	Abington Pa	T S Wilder	376	8	2	2	1	100
George F Geisinger Memorial Hospital [1, 3]	Danville Pa	E F Rabe	700	16	2	2	1	125
Harrisburg Polyclinic Hospital [1]	Harrisburg Pa	M. Ames	1,888	10	1	2	2	250
Albert Einstein Medical Center								
Northern Division [1, 3]	Philadelphia	A M. Dannenberg	1,196	3	1	2	1	200
Southern Division [1, 3]	Philadelphia	I P Morris						
		M. M. Malen	257	6	1	1	1	150
Children's Hospital [1, 3]	Philadelphia	J Stokes Jr	1,817	56	10	20	2	20
Germantown Dispensary and Hospital [1, 3]	Philadelphia	P S Barba	1,388	29	1	2	1	150
Graduate Hospital of the University of Pennsylvania [1, 3]	Philadelphia	J Ritter	972	2	1	1	1	
Hahnemann Medical College and Hospital [1, 3, 235]	Philadelphia	C O Fischer	1,973	32	3	6	2	
Hospital of the University of Pennsylvania [1, 3]	Philadelphia	P Gyorgy	3 051	43	2	7	2	
Hospital of the Woman's Medical College of Pa [1-3, 6]	Philadelphia	J Crump	711	16	1	3	2	60
Jefferson Medical College Hospital [1, 3]	Philadelphia	C F McKhann	735	19	4	5	2	
Lankenau Hospital [1, 3]	Philadelphia	E P Bacon	322	6	2	2	1	100
Philadelphia General Hospital [1, 3]	Philadelphia	E L Noone	1 735	74	2	6	2	113
St Luke's and Children's Medical Center [1, 3]	Philadelphia	H A. Agerty	610	8	2	2	1	125
Temple University Hospitals								
St Christopher's Hospital for Children [1, 3, 2, 6, 2, 9]	Philadelphia	W E Nelson	3 700	68	11	26	2	50
Temple University Hospital [1, 3]	Philadelphia	W E Nelson	16	1				
Allegheny General Hospital [1, 3]	Pittsburgh	T O Elterich	559	8	1	1	1	
Children's Hospital [1-3]	Pittsburgh	E R McCluskey	2 478	110	10	17	2	50
Western Pennsylvania Hospital [1, 3]	Pittsburgh	H. C Flood	1,909	7	1	1	1	225
Robert Packer Hospital [1, 3]	Sayre Pa	D S Motsay	2,030	33	1	2	2	150
Charles V Chapin Hospital [1-3]	Providence R I	H G Calder	1 463	10	4	4	1	150
Rhode Island Hospital [1, 3, 263]	Providence R I	R M. Lord	1,324	13	2	4	2	60
Roper Hospital [1, 3]	Charleston S C	M. W Beach	1 458	25	1	4	2	83
Columbia Hospital [1, 3]	Columbia S C	H W Moore	4 115	28	1	2	2	250
T C Thompson Children's Hospital [1, 3]	Chattanooga Tenn	S Smith	8,332	22	3	4	1	175
Knoxville General Hospital	Knoxville Tenn	O Hill	558	4	1	1	1	135
Baptist Memorial Hospital [1, 3]	Memphis Tenn	C W Woolley	1,967	13	1	2	1	100
John Gaston Hospitals [1, 3, 265]	Memphis Tenn	F T Mitchell	2,181	58	5	12	2	2
Le Bonheur Children's Hospital	Memphis Tenn						2	
Methodist Hospital	Memphis Tenn	G J Levy	1,364	9	1	1	1	100
St Joseph Hospital [1, 3, 264]	Memphis Tenn	H J Jacobson	3,399	35	1	2	2	
George W Hubbard Hospital of Meharry Medical College [1, 3]	Nashville Tenn	E P Crump	871	23	2	6	2	125
St Thomas Hospital [1, 3]	Nashville Tenn	L Beazley Jr	370	14	1	2	1	200
Vanderbilt University Hospital [1, 3, 269]	Nashville Tenn	A. Christie	857	50	4	5	2	50
Children's Medical Center [1, 3, 463]	Dallas Texas	G Fashena	3,571	47	6	14	2	50

Numerical and other references will be found on pages 414 to 416

18. PEDIATRICS—*Continued*

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
St Paul's Hospital [1, 2]	Dallas, Texas	A L Alfieri	2 476	15	8	5	1	125
University of Texas Medical Branch Hospitals [1-3, 209]	Galveston Texas	A Hansen	1,009	48	7	14	2	150
Hermann Hospital [1, 5, 7, 27]	Houston, Texas	R J Blattner	1,109	20	4	9	2	100
Jefferson Davis Hospital [1-4, 70]	Houston, Texas	R J Blattner	4 546	183	4	8	2	50
Santa Rosa Hospital [2]	San Antonio Texas	S R Kaliski	2,074	46	1	2	1	150
Salt Lake County General Hospital [1, 5, 135]	Salt Lake City	J F Bosma	743	15	5	13	2	150
Mary Fletcher Hospital [1, 5, 210]	Burlington, Vt	R J McKay, Jr	576	20	1	2	1	75
University of Virginia Hospital [1-5]	Charlottesville, Va	W W Waddell Jr	1,036	87	3	5	2	50
Medical College of Virginia—Hospital Division [1-5]	Richmond, Va	L E Sutton, Jr	1 861	50	8	14	2	50
Children's Orthopedic Hospital [1, 3, 135]	Seattle	J I Durand	1,476	69	2	4	2	160
King County Hospital, Unit No 1 (Harborview) [1-3, 203]	Seattle	W B Seelye	1,003	12	2	8	2	110
Memorial Hospital [1-3]	Charleston, W Va	J Basman	852		2	2	1	
University Hospitals								
State of Wisconsin General Hospital [1]	Madison, Wis	J E Gonce, Jr	987	41	2	6	2	
Milwaukee Children's Hospital [1]	Milwaukee	G H Wegmann	3,118	61	5	9	2	150
Milwaukee County Hospital [1-3]	Milwaukee	M G Peterman	8,058	14	2	4	2	208
Kauikeolani Children's Hospital [1, 5, 301]	Honolulu, T H	G Ewing	4,102	29	8	4	2	250
Bayamon District Hospital [1-5]	Bayamon, P R	I Ortiz	1,754	146	1	2	1	255
San Juan City Hospital [1, 2]	San Juan, P R	A Ortiz	1,714	79	2	6	2	150

19. PHYSICAL MEDICINE AND REHABILITATION

The following services have been approved by the Council and the American Board of Physical Medicine, through the Residency Review Committee for Physical Medicine, as offering acceptable training in the specialty

Hospitals, 52, Assistant Residencies and Residencies, 146

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Number of Treatments	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY								
Letterman Army Hospital [1, 3-66]	San Francisco	R C Psaki	11,002	106 974			8	
Fitzsimons Army Hospital [1, 66]	Denver	A F Mastellone	7 326	251,675			3	
Army Medical Center [1, 5, 66, 67]	Washington D C	H B Luscombe	3,112	289 490	2	6	8	
Brooke Army Medical Center [5, 66, 290]	San Antonio Texas	J H Kuitert	29,615	216,294			8	
VETERANS ADMINISTRATION								
Veterans Admin Hospital [1, 2]	Denver	O O Hoffman	2,068	61 757	1	1	8	••
Veterans Admin Research Hospital	Chicago	(See Northwestern University Medical Center)						
Veterans Admin Hospital [1]	Hines Ill	M D Flank	8,518	343,347	4	4	3	
Veterans Admin Hospital [1, 3, 386]	Wadsworth Kans	S F Radzyminski	1 638	136,734	1	2	2	
Veterans Admin Hospital	Fort Howard, Md						1	
Veterans Admin Hospital [1, 3, 182]	Boston (West Roxbury)	J S Bisgrove	312	28 217	1	1	1	
Veterans Admin Hospital [2]	New York City (Bronx)	A S Abramson	4 290	262 812	1	8	3	
Veterans Admin Hospital	Buffalo, N Y						8	
Veterans Admin Hospital [1, 3]	Cleveland	H T Zankel	4,115	79,104	2	5	3	
Veterans Admin Hospital [1-3]	Portland Ore	E W Fowlks	3 321	137 927	1	3	2	
Veterans Admin Hospital [1, 289]	Aspinwall, Pa	S Machover	1,753	65 436		2	2	
Veterans Admin Hospital [1-3]	Philadelphia	R H Schlesinger	771	25 760	1	3	3	
Veterans Admin Hospital [1-3]	Memphis, Tenn	F I Mahoney	2 874	179,901	2	2	8	
Veterans Admin Hospital [1-2]	Houston Texas	L A Leavitt	2,376	94 660	1	2	3	
Veterans Admin Hospital	Richmond, Va						8	
Veterans Admin Hospital [1]	Milwaukee	R Plaskoski	8,551	221,912	1	1	3	

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Number of Treatments	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Los Angeles County General Hospital [2]	Los Angeles	E Austin	25,705	77,115	2	2	8	200
White Memorial Hospital [1-3]	Los Angeles	F B Moor	1,700	24 662	1	8	3	
University of Colorado Medical Center								
Colorado General Hospital [1-3-32]	Denver	H Dinken	1 480	34 563	1	8	8	150
Connecticut State Veterans Home and Hospital for Chronic Illness [1, 3-54]	Rocky Hill, Conn	T Hines	572	50 216	8	7	3	835
District of Columbia General Hospital [1-2]	Washington, D C						3	
George Washington University Hospital [1-3]	Washington, D C	C Wise	16 540	22 102		2	3	150
Georgia Warm Springs Foundation [1-3-448]	Warm Springs, Ga	R L Bennett	509	112,221	2	0	8	400
Michael Reese Hospital [1-3]	Chicago	C Molander	2 809	32,678	1	1	1	60
Northwestern University Medical Center [1-3, 311]	Chicago	B Boynton	8 192		6	6	8	
Veterans Admin Research Hospital	Chicago	L Newman					3	
University of Illinois Research and Educational Hospitals [1]	Chicago	F H Hellebrandt	1,031	10 848	1	1	3	110
University of Kansas Medical Center [1]	Kansas City, Kan	D Rose	2 014	48 790	1	3	2	125
Massachusetts General Hospital [1-3]	Boston	A L Watkins	1,114	16,511	1	2	3	
University Hospital [1-3]	Ann Arbor, Mich	J Rae		32 112	2	0	3	140
University of Minnesota Hospitals [1-3]	Minneapolis	F Kottke	1 032	51 365	8	5	3	162
Mayo Foundation [1-3]	Rochester, Minn	F H Krusen	17 787	105,221	2	6	8	150
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N H	T P Anderson	1,384	22,264	1	2	2	170
Bellevue Hospital Center								
Division III—New York Univ College of Med [1-3-222]	New York City	H Rusk	20,053	115 030	0	14	3	93
Bird S Coler Memorial Hospital and Home	New York City						3	
Goldwater Memorial Hospital [1, 8]	New York City	M Daeso	947	37,928	2	4	3	60
Hospital for Joint Diseases [2-3]	New York City	J Weiss	2,552	77 534	1	2	1	70
Hospital for Special Surgery [2-3]	New York City	K G Hansson	4 301	39 528	1	1	1	
Metropolitan Hospital [1, 3]	New York City	J Tobis	841	16 386	3	0	3	150
Montefiore Hospital [1-3]	New York City						2	
Mount Sinai Hospital [1-3]	New York City	W Bierman	9,910	36 994		1	1	60
New York City Hospital [1-3]	New York City	F K Safford Jr	1 700	13,281	1	1	1	150
Presbyterian Hospital [1-3]	New York City	R C Darling	5,047	187,122		6	3	
St Luke's Hospital [1, 3]	New York City	R Muller	868	146,454	1	1	2	75
Cleveland Clinic Hospital [1-3]	Cleveland	W J Zeiter	3,870	21,193	1	3	3	125
Ohio State University Hospitals								
University Hospital [1-3]	Columbus, Ohio	R E Worden	15,484	21 658	1	2	3	150
Hospital of the University of Pennsylvania [1-3]	Philadelphia	G Piersol	1,507	35,496	2	6	3	
Philadelphia General Hospital [1-3]	Philadelphia	A A Martucci	8 955	111 490	2	2	1	113
Gonzales Warm Springs Foundation for Crippled Children	Gonzales, Texas	O F Von Werssowetz	2,449	64 913		2	1	
Medical College of Virginia—Hospital Division [1-3]	Richmond, Va	H W Park	2 131	28,291	3	6	3	60

Numerical and other references will be found on pages 414 to 416

20 PLASTIC SURGERY

The following services have been approved by the Council and the American Board of Plastic Surgery through the Residency Review Committee for Plastic Surgery as offering acceptable training in the specialty

Hospitals, 30, Assistant Residencies and Residencies 76

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
FEDERAL								
UNITED STATES ARMY								
Brooke Army Hospital [3-46] [50]	San Antonio Texas	B N Soderberg	590					
VETERANS ADMINISTRATION								
Veterans Admin Hospital [1] [3]	Los Angeles	G Webster	255			1	1	
Veterans Admin Hospital [1]	Hines Ill.	P W Greeley	176	1		1	2	
Veterans Admin Hospital [1] [3] [204]	New York City (Bronx)	H Conway	214		2	5	2	
Veterans Admin Hospital [1]	White River Jct Vt	(See Dartmouth Medical School Affiliated Hospitals)						
NONFEDERAL								
Franklin Hospital [1] [3-42]	San Francisco	H M Blackfield	263		1	2	2	110
St Francis Memorial Hospital [1] [3]	San Francisco	G W Pierce	890		1	2	2	300
Indiana University Medical Center [1]	Indianapolis	H Trussler	387	3		1	2	215
University of Kansas Medical Center [1]	Kansas City Kan	D Robinson	513	6	2	3	2	125
Johns Hopkins Hospital [1-3]	Baltimore	M T Edgerton	725	6		3	2	20
Henry Ford Hospital	Detroit	R H Clifford					2	
Mayo Foundation [1-3]	Rochester Minn	F A Figi	3,834	1	4	13	2	150
Barnes Hospital [1-3]	St Louis	J B Brown	905	1		4	2	50
Dartmouth Medical School Affiliated Hospitals								
Mary Hitchcock Memorial Hospital [1-3]	Hanover N H	R C Tanzer	269	2	1	2		
Veterans Admin Hospital [1]	White River Jct., Vt	R C Tanzer	264	2	1	2	2	
Hospital of St Barnabas and for Women and Children [1] [3]	Newark N J	L. A Peer	626			2	2	150
Albany Hospital [1] [3-411]	Albany N Y	W B Macomber	440		1	2	2	75
Kings County Hospital [1-2] County Division	Brooklyn N Y	G O Brien	827	7	1	2	2	98
Beth Israel Hospital [1] [3]	New York City	A J Barsky	297		1	1	2	135
New York Hospital [1] [3]	New York City	H Conway	526		1	2		85
Presbyterian Hospital [1] [3]	New York City	J P Webster	743			4	2	
Strong Memorial Rochester Municipal Hospitals [1] [3]	Rochester N Y	R M McCormack	320			1	2	42
State University of New York Medical Center [1]	Syracuse N Y	L Sutton				1	2	
Duke Hospital [1] [3] [9]	Durham N C	K L Pickrell	1,130	2		6	2	67
University Hospitals [1] [3]	Oklahoma City	J Burton	236	2	1	1	1	95
Allentown Hospital [1-3]	Allentown Pa	K. M. Marcks	658	1	1	1	2	225
Graduate Hospital of the University of Pennsylvania [1] [3]	Philadelphia	L Curtis	90		1	1	2	
Pittsburgh Medical Center [1-3]	Pittsburgh	S M Dupertuis	1 667	9	2	4	2	200
Baylor University Hospital [1] [3]	Dallas Texas	J Mills	805	1	1	1	2	105
University of Texas Medical Branch Hospitals [1] [3]	Galveston Texas	T G Blocker Jr	1 002		2	4	2	150
Jefferson Davis Hospital [1]	Houston Texas	T D Cronin						
		S B Hardy	194	2	1	2	2	50
University Hospitals State of Wisconsin General Hospital [1]	Madison Wis	W B Slaughter	419	2	1	2	2	

21 PREVENTIVE MEDICINE AND PUBLIC HEALTH

The following programs have been approved for two years of training by the Council and the American Board of Preventive Medicine, through the Residency Review Committee for Preventive Medicine

Department of Health	Location	Director	Local Areas	Population	Stipend (Month)
State of California	San Francisco	J C Dement	Alameda County (a)	230 000*	$400 max.
			San Joaquin Local Health Dist	224,500*	
State of Delaware	Dover	F I Hudson Ex. Sec.	Kent and Newcastle Counties (b)	16[illegible] 700*	$400-500
State of Florida	Jacksonville	W T Sowder	Alachua County	63 000*	(c)
			Dade-Miami	651,500*	
			Hillsborough Tampa	257,500*	
			Pinellas-St Petersburg	184 000*	
State of Illinois	Springfield	R R Cross	Cook County (d) (e)	743,988	$416-500
			Will County (e)	134,366	
State of Kansas	Wichita	T R Hood	Kansas City Wyandotte	172 762	(f) (g)
			Topeka-Shawnee	116 774	
			Wichita Sedgwick	272 000	
State of Maryland	Baltimore..	R H. Riley	Anne Arundel County	133,323*	(g)
			Baltimore County	307 409*	
			Eastern Health District of Baltimore City	833 000*	
			Montgomery County	190,560*	
			Washington County	82 152*	
State of Massachusetts	Boston	S B Kirkwood	(h)	(h)	$450 (i)
State of Michigan	Lansing	A. E Heustis	Calhoun County	120,813	$400
			Detroit	1,849,568	
			Kalamazoo City County		
			Michigan Dept. of Health	(m)	
			Wayne County (j)	490,078	
State of Minnesota	Minneapolis	A. J Chesley Secy and Ex Off	Olmstead Rochester	48,228*	75% of what job will pay (k)
New York City	New York City	L Baumgartner Com R P Kandle Dep Com			$423
State of New York	Albany	H E Hilleboe	(l)	(l)	$425
State of North Carolina	Raleigh	J W R Norton	Charlotte-Mecklenburg County	211 754*	
			Forsyth Winston-Salem	152,524*	
			Halifax	58 971*	
			Orange-Person Chatham Lee	112,955*	
State of Texas	Austin	H A. Holle			
State of Virginia	Richmond	M. I Shanholtz			$700
State of Washington	Seattle	J A. Kahl	King Seattle	765,200	$500
			Clark Skamania	87,300	

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* Estimated

(a) Excludes Alameda Berkeley and Oakland cities with full time health officers and Albany and Livermore with part time officers

(b) Excludes the city of Wilmington

(c) To those planning to work in state transportation costs only to others

(d) Excludes Berwyn Chicago Evanston Oak Park Stickney Township and Winnetka (including Glencoe Kenilworth Northbrook and remainder of New Trier Township) all with full time health officers

(e) Assistance can be arranged for securing the MPH degree in the midst of or after completion of residency experience It is preferred that candidates have some experience and the MPH degree before applying for the residency appointment Appointments normally are limited to those training for service in Illinois

(f) Arrangements for remuneration made on an individual basis

(g) Arrangements for remuneration made upon determination of field of interest and location desired

(h) Training is given in a combination of one county one union health and seven municipal health departments and in the divisions of the State Department of Health.

(i) To those training for service in Massachusetts only

(j) Excludes Detroit and Dearborn each with full time health officers

(k) To those training for service in Minnesota only

(l) Training is given in any one of ten City Health Departments 16 County Health Departments or 15 District Offices within the State

(m) Training to be with Michigan Department of Health, with field experience in local health departments

Numerical and other references will be found on pages 414 to 416.

22 PROCTOLOGY

The following services have been approved by the Council and the American Board of Proctology, through the Residency Review Committee for Proctology, as offering acceptable training in the specialty

Hospitals, 13, Assistant Residencies and Residencies, 26

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
FEDERAL								
VETERANS ADMINISTRATION								
Veterans Admin Hospital[1-3]	Los Angeles	O Taylor	450			1	1	
NONFEDERAL								
White Memorial Hospital	Los Angeles	M R Hill—F G ReBell	216	2			2	
Ferguson Droste Ferguson Rectal Clinic and Hospital[1 391]	Grand Rapids, Mich	J A Ferguson	2,061	14	2	4	2	250
University of Minnesota Hospitals[1 3]	Minneapolis	W Bernstein			1	1	2	167
Mayo Foundation[1 3]	Rochester Minn	R J Jackman	780	28	2	7	2	150
Millard Fillmore Hospital[1 3]	Buffalo	W H Bernhoft	424		1	1	2	
Youngstown Hospital[1 3]	Youngstown, Ohio	P J Fuzy Sr	767	8	1	2	1	125
Allentown Hospital[1 3]	Allentown, Pa	M S Kleckner	768		1	1	2	225
Jefferson Medical College Hospital[1 3]	Philadelphia	T A Shallow	458		1	1	1	50
Temple University Hospital[1 3]	Philadelphia	H E Bacon	896	7	1	3	2	
Pittsburgh Medical Center[1]	Pittsburgh	K Zimmerman	602	1		1	1	125
Baylor University Hospital[1 3]	Dallas, Texas	C Rosser	1,032		1	1	2	150
Milwaukee County Hospital[1 3]	Milwaukee	J D Charles	195	5	1	3	1	200

23. PSYCHIATRY

The following services have been approved by the Council and the American Board of Psychiatry and Neurology, through the Residency Review Committee for Psychiatry and Neurology, as offering acceptable training in the specialty

Hospitals, 265, Assistant Residencies and Residencies, 2,482

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Program Identification	Beginning Stipend (Month)
FEDERAL									
UNITED STATES ARMY									
Letterman Army Hospital[1 3 66]	San Francisco	J M Caldwell	1,192				3	12	
Fitzsimons Army Hospital[1 66]	Denver	O M Weaver	671				3		
Army Medical Center[1 3 66 6]	Washington, D C	F B Litteral	1,231		6	18	3		
UNITED STATES NAVY									
U S Naval Hospital[1 3]	Oakland Calif	D C Gaede	1,413	3			2		
U S Naval Hospital[1 3]	Great Lakes, Ill	F H Ocko	905	1			1		
U S Naval Hospital[1 3]	Bethesda Md	T W McDaniel	810	1		6	3		
U S Naval Hospital[1 3 351]	Philadelphia	J F McMullin	1 805	5	5	5	2		
UNITED STATES PUBLIC HEALTH SERVICE									
U S Public Health Service Hospital[1-185]	Lexington, Ky	R W Rasor J A Grider, Jr	5,310		6	18	3	30	
National Institute of Health—Clinical Center[1]	Bethesda, Md	R Cohen	55			12	1		
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE									
St Elizabeths Hospital[1 3]	Washington, D C	W Overholser	8 568	275	8	24	3	20	
VETERANS ADMINISTRATION									
Veterans Admin Hospital[1-3]	Tuskegee, Ala	P P Barker	2 601	27	2	2	2		
Veterans Admin Hospital[1 2]	North Little Rock, Ark	E S Chappell	2 447	69	4	8	3	49	
Veterans Admin Hospital[1 3]	Long Beach, Calif	J S L Jacobs	473	1	3	3	3		
Veterans Admin Hospital[1 3]	Los Angeles	J T Ferguson	1 970	140	14	40	3	11	
Veterans Admin Hospital[1 3 332]	Palo Alto, Calif	H D Von Witzleben	2 163	85	10	30	3	14	
Veterans Admin Hospital[1-3]	Denver	L L Woodfin	556	1	2	6	3		
Veterans Admin Hospital[1 3]	West Haven Conn	E Brody	160		8	17	2	18	
Veterans Admin Hospital[1 74]	Augusta, Ga	M Dunn	1,375	12	3	6	2	21	
Veterans Admin Hospital[1-60]	Downey, Ill	(See Northwestern University Medical Center)							
Veterans Admin Hospital[1]	Hines, Ill	F J Gerty	1,226	3	6	14	3	25	
Veterans Admin Hospital[1 3]	Indianapolis	B Frazin	600	5	2	6	1		
Veterans Admin Hospital[1 3]	Topeka, Kan	G L Harrington	1,886	10	25	75	3	29	
Veterans Admin Hospital[1-3-112]	Lexington, Ky	E W Straus	1,027	34	2	4	3	31	
Veterans Admin Hospital[1 3]	Louisville, Ky	D Moore	284	2	2	6	3	32	
Veterans Admin Hospital[1]	New Orleans	R L Stone	310		2	4	2	34	
Veterans Admin Hospital[1 2]	Perry Point Md	W M Harris	1,996	38	4	10	3	37	
Veterans Admin Hospital[3 378]	Bedford, Mass	A H Braverman	1,964	18	5	13	3	39	
Veterans Admin Hospital[1-3]	Boston (Jamaica Plain)	W Bloomberg	548	1	10	25	3		
Veterans Admin Hospital[1-3]	Battle Creek, Mich	A L Olsen	2 439	48	4	4	3	42	
Veterans Admin Hospital[1 3]	Dearborn, Mich	J L Kubanek	567	16	2	6	3	45	
Veterans Admin Hospital[1-3 398]	Minneapolis	W Simon	637		2	4	3	46	
Veterans Admin Hospital[1]	Gulfport, Miss	E R Bennett	1 598	14	2	6	3	34	
Veterans Admin Hospital[1 3]	Jefferson Barracks, Mo	A K Baur	665	8	1	3	3	48	
Veterans Admin Hospital[1 3 403]	Kansas City, Mo	W E Olson	102		2	4	1		
Veterans Admin Hospital[1]	Omaha	W M Gysin	274	6	2	6	3	53	
Veterans Admin Hospital[1-3-405]	Lyons, N J	M P Rosenblum	2 302	36	2	5	3	54	
Veterans Admin Hospital	Albany, N Y	I C Funk	449	14	3	9	3		
Veterans Admin Hospital[1 3]	Brooklyn	J Barasch	396	5	6	18	3	57	
Veterans Admin Hospital[1 3]	Buffalo	B G Schutkeker	342	6		2	2	56	
Veterans Admin Hospital[1 3]	Canandaigua, N Y	D Davis	2,077	29	3	6	2	65	
Veterans Admin Hospital[1 3 20]	Montrose N Y	A A Schillinger	2 091	24	4	10	3	61	
Veterans Admin Hospital[1 3 422]	New York City (Bronx)	H E Flowers	962	2	10	27	3	60	
Veterans Admin Hospital[3]	Durham, N C	J B Parker, Jr	173		2	5	3		
Veterans Admin Hospital[1 3 448]	Cleveland	L Halle	313		3	5	3	71	
Veterans Admin Hospital[1 3]	Coatsville Pa	W Winick	2 007	30	12	22	3	73	
Veterans Admin Hospital[1 3]	Philadelphia	M Cohen	75		2	4	1		
Veterans Admin Hospital[1 3]	Memphis, Tenn	E W Cocke	284	1	1	1	1		
Veterans Admin Hospital[1]	Nashville, Tenn	B T Bennett	167		2	4	3	75	
Veterans Admin Hospital[1 2]	Houston, Texas	O E Hubbard	761	4	4	12	3	78	
Veterans Admin Hospital[1]	Waco, Texas	G T McMahan	3 048	30	3	3	1		
Veterans Admin Hospital[1 2 253]	Salt Lake City	R H Anderson	894	6	4	12	3		
Veterans Admin Hospital[1-3]	Richmond, Va	J B Funkhouser	644	5	3	3	3	82	
Veterans Admin Hospital[1 3]	Roanoke, Va	R R Rudolph	2,833	48	8	15	3	68 80	
Veterans Admin Hospital[1]	Seattle	N C Chivers	199	10	6	12	3	83	

23 PSYCHIATRY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Program Identification	Beginning Stipend (Month)
Jefferson Hillman Hospital[1,2,31]	Birmingham Ala	F A Kay	489			1	1		
Arkansas State Hospital[1,2,31]	Little Rock Ark	W P Kolb	2,974	93	12	12	2		
Agnews State Hospital[1,323]	Agnew Calif	H. Tucker	7,948	121	5	5	1		310
Herrick Memorial Hospital[1,2]	Berkeley Calif	A E Bennett	469		1	3	2		
Camarillo State Hospital	Camarillo Calif						2		
Compton Sanitarium[1,2,31,33]	Compton Calif	G C Burns	553		4	4	1		250
Napa State Hospital[1,2,323]	Imola Calif	W A Oliver	7 181		2	2	1		310
Los Angeles County General Hospital[1]	Los Angeles	E Ziskind	9 720	60	2	6	3		200
Metropolitan State Hospital[1,2,30]	Norwalk Calif	R E Wyers	4,189	36	5	15	3	15	310
Patton State Hospital[1,2]	Patton Calif	R J Lentz			2	2	1		310
Langley Porter Clinic Hospital[1,2]	San Francisco	K. M Bowman	344	427	9	39	3	18	500
Mount Zion Hospital[1,2]	San Francisco	N Reider	64			4	2		150
Stanford University Hospitals[1,2]	San Francisco	G S Johnson	375		1	3	3		80
Pacific Colony[2]	Spadra Calif	G Tarjan	2,191	30		8	1		644
University of Colorado Medical Center									
Colorado Psychopathic Hospital[1,2,25,341]	Denver	H S Gaskill	857	4	12	34	3	16	183
Colorado State Hospital[1,2]	Pueblo Colo	J L Rosenbloom	6,394	181	6	12	2		
Institute of Living[1,2,344]	Hartford Conn	F J Braceland	1,032	6	8	16	3		
Connecticut State Hospital[1,2]	Middletown Conn	H S Whiting	4 238	97	6	12	2		425
Silver Hill Foundation[345]	New Canaan Conn	W B Terhune	325		1	1	1		800
Grace-New Haven Community Hospital[1,2]	New Haven Conn	T Lidz	112		8	17	3	17	50
Fairfield State Hospital[1,2]	Newtown Conn	J E Oltman	3,930	152	5	10	2		430
Norwich State Hospital[1,2]	Norwich Conn	C O Ranger	4 163	65	6	18	3		355
Delaware State Hospital[1,2]	Farnhurst Del	M A Tarumianz	1,877	42	4	10	3	19	
District of Columbia General Hospital[1-2]	Washington D C	G Gordon	8 742	8	3	3	1		125
Georgetown University Hospital[1,2]	Washington D C	G N Raines	70			4	2		
George Washington University Hospital[1-2]	Washington D C	W Overholser	753			1	2		155
Duval Medical Center[1,2]	Jacksonville Fla	S G Bedell	593	4	2	6	1		175
Jackson Memorial Hospital[1,2]	Miami Fla	J S Gottlieb			5	15	2		166 67
Grady Memorial Hospital[1,2]	Atlanta Ga	C A. Whitaker			1	1	1		250
University Hospital[1,2]	Augusta Ga	H. M. Cleckley	903	1	1	3	2		100
Chicago State Hospital[1,2,9]	Chicago		6 760	127	3	7	3	23	
Cook County Hospital[1,2]	Chicago	V G Urse	8,140	6	5	5	3		250
Loretto Hospital[1-2]	Chicago	J J Madden	574	1	1	1	1		200
Mercy Hospital[1,2]	Chicago	J J Madden	423		1	1	1		100
Michael Reese Hospital[1,2]	Chicago	R R Grinker	1 005	5	5	15	3		50
Northwestern University Medical Center[110]									
Chicago Wesley Memorial Hospital[1,2]	Chicago	B Boshes	555	1	2	6	3		50
Veterans Admin Hospital	Downey Ill	A Paunez	3,201	78	2	6	3	26	
St. Luke s Hospital[1,2]	Chicago	F J Gerty	268	4	1	2	3	22	50
University of Chicago Clinics[1,2]	Chicago	N B Apter	140		3	9	3		175
University of Illinois Neuropsychiatric Institute	Chicago	F J Gerty	170		3	9	3		110
Dixon State School[1,2]	Dixon Ill	R E Wallace	5 053	101	3	3	1		300
Elgin State Hospital[1,2]	Elgin Ill	W Tuteur	9 152	213	12	18	1	23	250
Jacksonville State Hospital[1,2]	Jacksonville Ill.	S N Leschin	4 755	95	4	4	1		285
Manteno State Hospital[1,2]	Manteno Ill	M. W Chermak	11,254	143			2	24	280
North Shore Health Resort[1,2]	Winnetka Ill	S Liebman	331	1		2	1		
Central State Hospital[1]	Indianapolis	C L Williams	2 466	2	2	4	2		
Indiana University Medical Center and Affiliated Hospitals									
Indianapolis General Hospital[1-267]	Indianapolis	E W Mericle	452	4	1	3	3	23	300
Indiana University Medical Center[1,267]	Indianapolis	P Seitz			12	39	3	23	355
Norways Foundation Hospital[1,2,102]	Indianapolis	J H Greist	758	1	3	7	2		300
Logansport State Hospital[1]	Logansport Ind	G Morrow	674	25	1	3	1		
Mental Health Institute[1,2]	Cherokee Iowa	W C Brinegar	1,864	54	2	2	1		300
Mental Health Institute[1-2]	Independence Iowa	D L Kyer	1 412	42	6	6	1		300
Iowa State Psychopathic Hospital[1,2,101]	Iowa City	W R Miller	362		4	12	3		200
Halstead Hospital[1,2]	Halstead Kan	T L. Foster	285	1	3	3	2		250
University of Kansas Medical Center[1,2]	Kansas City Kan	W Roth Jr	144		2	8	3		125
Menninger Psychiatric Hospital[1,2]	Topeka Kan	K. A. Menninger	240			[illegible]	3	29	
Topeka State Hospital[1,2]	Topeka Kan	C Case	1,909	41	16	40	3	29	300
Central State Hospital[1,2,113]	Lakeland Ky	G P Wyman	3,110	3	3	3	1		300
University of Louisville Hospitals									
Louisville General Hospital[1,2]	Louisville Ky	W K. Keller	871	4		1	3	33	200
Norton Memorial Infirmary[1-2]	Louisville Ky	S S Ackerly	268			4	3	33	275
Charity Hospital of Louisiana									
Louisiana State University Unit[1]	New Orleans	R. A. Matthews		2	2	6	3	35	100
Tulane University Unit[1]	New Orleans	R G Heath		4	2	6	3	34	100
De Paul Sanitarium[1,2]	New Orleans	W J Otis	1 038	7	2	6	1		
Johns Hopkins Hospital[1,2]	Baltimore	V C Whitehorn	327	1		18	3	36	20
Seton Institute[1,2]	Baltimore	W O Jahrreiss	593	1	3	10	2		200
University Hospital[1,2]	Baltimore	J E Finesinger	117		5	17	3		150
Spring Grove State Hospital[1,2,124]	Catonsville Md	L Tuerk	4 055	64	6	13	3		300
Chestnut Lodge[1,2]	Rockville Md	D M. Bullard	148			5	1		400
Springfield State Hospital[1,2]	Sykesville Md	M. V Beyer	4,122	59	4	12	2		418
Sheppard & Enoch Pratt Hospital[1]	Towson Md	H. M. Murdock	464	6	5	12	3		100
Beth Israel Hospital[1,2]	Boston	G L. Bibring	2 008		6	6	2		250
Boston Psychopathic Hospital[1,2]	Boston	H C Solomon	851	4	8	22	3		255
Boston State Hospital[1,2,2]	Boston	J Mann	4 623	92	12	26	3		
Massachusetts General Hospital[1,2]	Boston	S Cobb	271		2	3	2	40	
Massachusetts Memorial Hospitals[1,2]	Boston	W Malamud			1	9	3	38	250
New England Center Hospital[1,2]	Boston	J Hope				2	1		83
St Elizabeth s Hospital[1,2]	Boston	N Flanagan	602		2	2	1		125
Foxborough State Hospital[1,2]	Foxborough Mass	J T Shea	1 774	69	1	2	2		255
Danvers State Hospital[1,2]	Hathorne Mass	P B Hagopian	3,324	83	2	2	1		255
Medfield State Hospital[1,2]	Medfield Mass	T F Lindberg	2 139	31	2	2	1		255
Northampton State Hospital[1,2]	Northampton Mass	J H. F Longpre	3,241	39	2	2	1		255
Austen Riggs Center[1]	Stockbridge Mass	R P Knight	118			6	2		500
Taunton State Hospital[1,2]	Taunton Mass	B E Zawacki	2 781	18	6	6	2		
Metropolitan State Hospital[1,2,353]	Waltham Mass	M Asekoff	2 536	65	2	2	2		
McLean Hospital[1,2]	Waverley Mass	P M. Howard	493	9		6	2	40	
Worcester State Hospital[1,2]	Worcester Mass	D Rothschild	3,601	56	7	17	3		255
University Hospital[1,2]	Ann Arbor Mich	R Waggoner	467	2	7	25	3		272
St Joseph s Retreat[1,2]	Dearborn Mich	M H Hoffmann	1,541	4	2	2	1		300
Henry Ford Hospital[1,2]	Detroit	L W Proctor	350		1	3	3	41	333.33
Receiving Hospital[1,2]	Detroit	J Dorsey	6 053	19	2	7	3	44	254
Wayne County General Hospital and Infirmary[1,2]	Eloise Mich	J A. Bellisle	4,995	55	3	14	3	10	413
Kalamazoo State Hospital[1,2,394]	Kalamazoo Mich	C M. Schrier	4,915	19	4	6	2	43	635
Northville State Hospital	Northville Mich						2		
Pontiac State Hospital[1,2,154]	Pontiac, Mich.	I A La Core	3,545	65	5	10	3	10	501
Traverse City State Hospital[1,2]	Traverse City Mich	R P Sheets	5,526	93	7	9	2		502

Numerical and other references will be found on pages 414 to 416

23. PSYCHIATRY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Program Identification	Beginning Stipend (Month)
Ypsilanti State Hospital[1, 3]	Ypsilanti, Mich	O R Yoder	4,862	92	9	18	3		502
Minneapolis General Hospital[1, 3]	Minneapolis	R W Anderson	670	6	1	2	1		182
University of Minnesota Hospitals[1-3]	Minneapolis	D W Hastings	284	1	8	4	3		165
Mayo Foundation[1, 3]	Rochester, Minn	H P Rome	1,059	1	5	19	3	47	150
Rochester State Hospital[1-3, 399]	Rochester Minn	M C Petersen	2,657	118	1	8	1		250
Mississippi State Hospital[1]	Whitfield, Miss	W L Jaquith	2,814	85	6	6	1		
Kansas City Hospital No 1[1, 3]	Kansas City Mo	F J Koenig	310	1	2	6	3		150
State Hospital No 2[1]	St Joseph Mo	O Mullinax	2,263	17	2	2	1		250
Barnes Hospital[1, 3]	St Louis	E F Gildea	506	1	6	13	3	10	50
Homer G Phillips Hospital[1, 3]	St Louis	E F Gildea	1,090	4	8	8	2		
St Louis City Hospital[1, 3]	St Louis	E F Gildea—R B Itt	1,398	12	4	9	3		137
St Louis State Hospital[1, 3]	St Louis	L H Kohler	3,688	60	7	21	3		250
St Mary's Group of Hospitals[1, 3]	St Louis	F M Grogan	301	2	1	8	3	50	65
Hastings State Hospital[1, 3]	Ingleside, Neb	G L Sandritter	2,464	66	6	12	2	52	400
Norfolk State Hospital[1]	Norfolk, Neb	O G Ingham	1,418	4	3	3	1	52	400
Creighton Memorial St Joseph's Hospital[3]	Omaha	F Barta	848	2	2	6	2		175
Lutheran Hospital[1]	Omaha	R S Wigton	1,834	4	2	6	2		200
University of Nebraska Hospital[1]	Omaha	C L Wittson	137		4	20	3	51	
New Hampshire State Hospital[1, 3]	Concord N H	E K Holt	3,558	40	2	2	1		263
Essex County Overbrook Hospital[1, 3]	Cedar Grove N J	J G Sutton	3 019	101	2	4	2		200
New Jersey State Hospital[1, 3]	Greystone Park, N J	A Crandell	8,357	160	4	10	2		
New Jersey State Hospital[406]	Marlboro N J	J B Gordon	4,443	127	2	2	2		800
Bergen Pines County Hospital[1, 3]	Paramus N J	A Caemmerer	860	4	1	1	1		200
New Jersey State Hospital[1, 3]	Trenton, N J	H S Magee	6,381	83	5	10	2	10	475
Albany Hospital[1, 3]	Albany, N Y	W L Holt, Jr	1 452	5	2	4	3		75
Binghamton State Hospital[1, 3-412]	Binghamton N Y	O H Boltz	3 435	64	3	7	1		395
Brooklyn State Hospital[1, 3-161]	Brooklyn	N Beckenstein	5,376	17	17	17	3		395
Kings County Hospital[1, 3] University Service	Brooklyn	H W Potter	9 875	43	10	80	3		150
Buffalo State Hospital[1, 3, 412]	Buffalo	D Whitehead	990	84	3	9	3		395
Edward J Meyer Memorial Hospital[1, 3]	Buffalo	S M Small	2 665	31	1	3	3		179
Central Islip State Hospital[1-3, 204]	Central Islip, N Y	F J O Neill	10 682	284	6	18	3		394
Hillside Hospital[1, 3]	Glen Oaks N Y	E Huff	177		6	14	3	10	200
Meadowbrook Hospital[1]	Hempstead N Y	R R Steen	1,082	27	1	1	1		225
Pinewood Sanitarium[1, 3]	Katonah N Y	L Wender	284		1	1	1		300
Kings Park State Hospital[1, 3]	Kings Park N Y	C Buckman	11,032	176		14	2		394
River Crest Sanitarium[1]	Long Island City, N Y	M Dollin	913			2	1		350
Marcy State Hospital[1, 3]	Marcy, N Y	G L Warner	3,018	18	5	5	2		394
Middletown State Homeopathic Hospital[1, 3, 401]	Middletown, N Y	W A Schmitz	4,000	86	6	6	2		395
Bellevue Hospital Center Division III—New York University College of Medicine[1, 3]	New York City	L I Sharp	18,448	161	34	92	3	58	98
Manhattan State Hospital[1, 3, 196]	New York City	J H Travis	4,230	94	6	13	3	59	395
Mt Sinai Hospital[1, 3]	New York City	M R Kaufman	111		4	5	2		50
New York Hospital[1, 3]	New York City	O Diethelm	300	2	4	18	3		69
New York State Psychiatric Institute[1, 3]	New York City	I H MacKinnon	850	2	8	10	3		394
New York University—Bellevue Medical Center University Hospital[1, 3]	New York City	S B Wortis	334		1	6	1	58	140
Roosevelt Hospital[1, 3]	New York City	R W Laidlaw	63			1	1		110
St Lawrence State Hospital[1-3-412]	Ogdensburg, N Y	G F Etling	2,774	61	8	16	2		394
Rockland State Hospital[1, 3]	Orangeburg, N Y	A M Stanley	9,556	115	6	26	3	10	394
Stony Lodge[1, 3]	Ossining, N Y	B C Glueck, Jr	182	1		2	1		
High Point Hospital[1, 3]	Port Chester, N Y	A Gralnick	130			4	1		375
Hudson River State Hospital[1-3, 425]	Poughkeepsie, N Y	O A Kilpatrick	6,234	47	4	10	3	62	394
Creedmoor State Hospital[1, 3]	Queens Village, N Y	H A La Burt	7,755	75	9	83	3		395
Rochester State Hospital[1, 3]	Rochester, N Y	C F Terrence	4,087	64	3	7	3	64	381
Strong Memorial Rochester Municipal Hospitals[1-3]	Rochester, N Y	J Romano	1,066	1	4	12	3	63	42
Ellis Hospital[1, 3]	Schenectady, N Y	E Davidoff	641	5	2	8	2		160
Syracuse Psychopathic Hospital[1, 3]	Syracuse N Y	R F Binzley	594	5	2	6	3	66	391
Letchworth Village[1, 3]	Thiells, N Y	H C Storrs	3 977	83	2	8	1		394
Utica State Hospital[1-3-427]	Utica, N Y	B B Young	2,746	44	2	4	2		394
Grasslands Hospital[1, 3]	Valhalla N Y	F V Rockwell	1,214	8	3	7	3		193
Pilgrim State Hospital[1, 3, 423]	W Brentwood, N Y	H J Worthing	8,129	307	20	40	3		396
New York Hospital—Westchester Division[1-3]	White Plains N Y	J H Wall	740	7	6	9	3		150
Willard State Hospital[1, 3-412]	Willard, N Y	K Keill	3,591	68	4	8	2		394
Harlem Valley State Hospital[1, 3-176]	Wingdale, N Y	L P O'Donnell	5,971	105		7	2	55	391
North Carolina Memorial Hospital[1]	Chapel Hill, N C	G C Ham	298	1	8	18	3		250
Duke Hospital[1-3-[illegible]]	Durham N C	E W Busse	412	1	4	14	3		167
State Hospital of Raleigh[1, 3-430]	Raleigh N C	D A Young	2,378	29	4	8	2		300
Graylyn North Carolina Baptist Hospital[1-3]	Winston Salem, N C	L J Thompson	492		8	8	3		250
Windsor Hospital[1, 3]	Chagrin Falls Ohio	J H Nichols	726			1	1	70	300
Christ Hospital[1]	Cincinnati	H D Fabing	627	6	1	1	1		200
Cincinnati General Hospital[1-3-13]	Cincinnati	M Levine	1,414	12	11	82	3	69	
Longview State Hospital[1, 3]	Cincinnati	D Goldman	4,053	88	8	6	1		275
Cleveland Clinic Hospital[1, 3]	Cleveland	L J Karnosh			1	2	2	70	175
Cleveland Receiving Hospital[1, 3]	Cleveland	K Salus	1,261	9			2		600
University Hospitals[1, 3]	Cleveland	D D Bond	192		3	6	2	71	125
Columbus State Hospital[1-3-445]	Columbus, Ohio	B Kovitz	8,491	187	4	12	2	10	600
Ohio State University Hospitals Columbus Receiving Hospital[1-3-444]	Columbus, Ohio	R M Patterson	441	1	6	15	3	10	293
Massillon State Hospital[1, 3]	Massillon, Ohio	A G Hyde	3,273	60		2	1		236
Harding Sanitarium[1, 446]	Worthington Ohio	H S Evans	752		3	6	2		
Oregon State Hospital[1]	Salem, Ore	D K Brooks	6 138	119		4	1		
Allentown State Hospital[1]	Allentown, Pa	R W Goshorn	2,909	3	3	3	1		
Danville State Hospital[1, 3]	Danville, Pa	O W Clinger	3,042	12	7	12	3		433
Embreeville State Hospital[1-2[illegible]]	Embreeville, Pa	J V Cohn	1,040	37	2	4	1		
Harrisburg State Hospital[1-3]	Harrisburg, Pa	H K Petry	8,075	45	3	6	2		
Norristown State Hospital[1]	Norristown, Pa	A P Noyes	5,283	68	4	19	3		600
Albert Einstein Medical Center, Southern Division[1, 3]	Philadelphia	P Sloane	782			1	1		250
Friends Hospital[1, 3]	Philadelphia	T L Dehne	463	6	8	6	2		
Hospital of the University of Pennsylvania[1-3]	Philadelphia	K Appel				12	2		
Institute of The Pennsylvania Hospital[1-3]	Philadelphia	L H Smith	364			5	2	72	105
Jefferson Medical College Hospital[1-3]	Philadelphia	B L Keyes	66		1	2	1		
Pennsylvania Hospital Department for Mental and Nervous Diseases[1, 3]	Philadelphia	L H Smith	504		3	10	2		105
Philadelphia General Hospital[1-3]	Philadelphia	J F Stouffer	2,595	30	3	8	3		
Philadelphia Psychiatric Hospital[1, 3-454]	Philadelphia	S Cohen	703		5	12	3		105
Philadelphia State Hospital[1-3]	Philadelphia	E L Sielke	7,156	30	6	12	2		[illegible]
Temple University Hospital[1, 3]	Philadelphia	O S English	107		2	6	3	74	
St Francis Hospital[1, 3]	Pittsburgh	H L Mitchell	8,002	38	1	3	2		150
Western Psychiatric Institute and Clinic[1, 3]	Pittsburgh	H W Brosin	823	1	11	33	3	75	272

Numerical and other references will be found on pages 414 to 416

23 PSYCHIATRY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Program Identification	Beginning Stipend (Month)
Warren State Hospital [1, 2]	Warren Pa	R H Israel	3,895	95	8	20	2		
Woodville State Hospital [1, 3, 4, 6]	Woodville Pa	R J Phifer	3 033	5	4	4	1		333
State Hospital for Mental Diseases [1, 2]	Howard R I	J F Regan	5 032	95	8	14	2		875
Butler Hospital [1, 2]	Providence R I	H H Babcock	279		2	6	2		200
Charles V Chapin Hospital [1, 2]	Providence R I	W N Hughes	884	0	2	2	1		413
Emma Pendleton Bradley Home [1, 2]	Riverside R I	M W Laufer	67	1		3	1		250
Gailor Memorial Psychiatric Hospital [1-3]	Memphis Tenn	T S Hill	303		4	4	3		325
Vanderbilt University Hospital [1, 2]	Nashville Tenn	W F Orr	89		2	6	3	76	50
Parkland Hospital [1-3]	Dallas Texas	E J McCranie	383	1		2	3	10	125
Timberlawn Sanitarium [1, 1]	Dallas Texas	G F Witt	626		3	6	2		200
University of Texas Medical Branch Hospitals [1, 2]	Galveston Texas	T Harris	2 637	7	8	24	3	77	150
Salt Lake County General Hospital [1, 2, 3, 4, 5]	Salt Lake City	C H H Branch	334	1	3	11	3		166
Vermont State Hospital [1, 2]	Waterbury Vt	R A Chittick	1 783	31	2	4	2		420
University of Virginia Hospital [1, 2]	Charlottesville Va	D C Wilson	696		8	20	3	80	220
Medical College of Virginia—Hospital Division [1, 2]	Richmond Va	R F Gayle Jr	759	5	1	3	3		50
Eastern State Hospital	Williamsburg Va	G L Jones	2 977	40	7	10	2	81	640
Western State Hospital [1]	Fort Steilacoom Wash	F E Shovlain	4,231	117	7	9	1		488
Pinel Foundation [1, 2]	Seattle	J B Dugan	127			2	1		
University Hospitals									
State of Wisconsin General Hospital [1]	Madison Wis	W J Bleckwenn	1 089	6	3	9	3		
Milwaukee County Hospital for Mental Diseases [1-2]	Milwaukee	M. Kasak	1 971	14	3	9	2	10	259
Milwaukee Sanitarium [1, 2]	Wauwatosa Wis	J A Kindwall	603	1	1	1	1		400
Queen's Hospital [1, 2]	Honolulu T H	J G Lynn IV	455		2	4	2		125
Territorial Hospital [1]	Kaneohe T H	R A Kimmich	1 700	24	2	4	2		633

PSYCHIATRY PROGRAM IDENTIFICATION

10 Service in child psychiatry
11 Six months service at Los Angeles County Hospital Los Angeles
12. Nine months service at Mount Zion Hospital six months at Langley Porter Clinic and service in child psychiatry San Francisco
13. Three months of service at Napa State Hospital San Francisco Hospital Stockton State Hospital Sonoma State Home and San Quentin Prison and six months at Colwell Memorial Hospital
14 Three months service Fort Miley Veterans Administration Hospital San Francisco and Langley Porter Clinic San Francisco may include elective services at University of California Hospital Mount Zion Hospital and Stanford University (Lane) Hospital San Francisco
15. Three months service at Pacific Colony Hospital Spadra and three months service in child psychiatry at Camarillo State Hospital
16. Affiliate services at Colorado General and Denver General Hospitals
17 Affiliate service at Veterans Administration Hospital West Haven Connecticut State Hospital Fairfield State Hospital Norwich State Hospital and service in child psychiatry
18 Twelve months service at Grace-New Haven Community Hospital New Haven Connecticut
19 Six months service at Governor Bacon Health Center Delaware City
20 Two months service at George Washington University Hospital Washington D C
21 Affiliate service at University Hospital Augusta Georgia
22. Twelve months service at the Neuropsychiatric Institute of the University of Illinois including service in child psychiatry
23. Eighteen months affiliate service including service at the Neuropsychiatric Institute of the University of Illinois and three months in child psychiatry
24 Affiliate service at Neuropsychiatric Institute of the University of Illinois and service in child psychiatry
25 Three months service at Veterans Administration Hospital Downey Illinois and service in child psychiatry
26 Six months service at Veterans Administration Hospital Hines Illinois May include service in child psychiatry
27 Six months service in child psychiatry
28 Integrated program including service at Veterans Administration Hospital Indianapolis General Hospital and Indiana University Medical Center and Affiliated Hospitals Indianapolis
29 Integrated program including service at Veterans Administration Hospital Menninger Sanitarium and Topeka State Hospital Topeka Kansas
30 Four months service at University of Louisville Services Louisville Kentucky and four months service at Cincinnati General Hospital Cincinnati Ohio
31 Three months service at University of Louisville Services Louisville Kentucky
32. Twelve months service at University of Louisville Services May include four months service at Central State Hospital four months service at Louisville General Hospital
33. Four months service at Central State Hospital and service in child psychiatry
34 Integrated program including service at Tulane University Unit Charity Hospital New Orleans and Veterans Administration Hospitals New Orleans and Gulfport Mississippi
35 Six months service in child psychiatry and twelve months service at South Louisiana State Hospital
36 Service in child psychiatry six months service at Veterans Administration Hospital Perry Point Maryland
37 Three months service in child psychiatry at Johns Hopkins Hospital (Harriet Lane House) Baltimore Maryland
38 Twelve months service at Boston State Hospital and service in child psychiatry
39 Twelve-eighteen months service at Veterans Administration Hospital Boston (Jamaica Plain) Massachusetts and six months service in child psychiatry
40 Integrated program including service at Massachusetts General Hospital and McLean Hospital Waverly
41 Twelve months service at University Hospital, Ann Arbor Mich
42. University Hospital Ann Arbor Michigan.
43. Three months service Coldwater State Home and Training School Caro State and Ionia State Hospitals and service in child psychiatry
44 Six months service in child psychiatry at Children's Hospital, Detroit
45 Six months service at Receiving Hospital Children's Hospital Detroit and Wayne County General Hospital and Infirmary Eloise Michigan
46 University of Minnesota Hospitals Minneapolis Minnesota
47 Three months service at Rochester State Hospital, Rochester Minn
48 Affiliate service at Barnes Hospital St Louis and three months at St Louis State Hospital
49 Six months service at Barnes Hospital St Louis Missouri
50 Service at St Louis State Hospital and St Louis City Hospital.
51. Service at Lutheran Hospital Omaha
52 Service at University of Nebraska Hospital.
53 Affiliate service at University of Nebraska Hospital and Creighton Memorial-St Joseph Hospital Omaha Nebraska
54 Six months service at Newark City Hospital three months at New Jersey State Hospital and three months in child psychiatry
55 Three months service at Albany Hospital Albany New York
56 Affiliate services at Edward J Meyer Memorial Hospital and Buffalo State Hospital.
57 Six months service at King's County Hospital Brooklyn New York.
58 Integrated program with service at Bellevue Hospital Center and University Hospital
59 Six months service at Mount Sinai Hospital, New York City
60 Service in child psychiatry May include six months service at Mount Sinai Hospital and three months at Manhattan State Hospital
61. Twelve months service at New York Hospital and four months at Veterans Administration Hospital New York City (Bronx) New York
62. Three months service at Grasslands Rockland State Albany Hospitals and Letchworth Village
63 Six months service at Rochester State Hospital Rochester New York.
64 Six months service at Strong Memorial–Rochester Municipal Hospitals Rochester
65 Affiliate service at Strong Memorial-Rochester Municipal Hospitals
66 Three months service at Syracuse Memorial Binghamton Syracuse and Willard State Hospitals service at Craig Colony and service in child psychiatry
67 Affiliate service at State Hospitals at Raleigh and Butner North Carolina
68 Eighteen months service at Duke Hospital Durham North Carolina.
69 Three months service at Longview State and Jewish Hospitals Cincinnati
70 Integrated program including service at Cleveland Clinic and Windsor Hospital.
71 Integrated program including service at University Hospital and Veterans Administration Hospital Cleveland Ohio
72. Integrated program with service at Institute of the Pennsylvania Hospital and Pennsylvania Hospital Department for Mental and Nervous Diseases
73 Affiliate services at Temple University Hospital Institute of Pennsylvania Hospital of the Woman's Medical College of Pennsylvania
74 Six months service at Philadelphia General Hospital and service in child psychiatry
75 Two months affiliate service for institutional care
76 Integrated program including service at Vanderbilt University Hospital, Veterans Administration Hospital Nashville Veterans Administration Hospital Murfreesboro and Central State Hospital Nashville
77 Four months affiliate service at St Mary's Infirmary Galveston Texas
78 Service in child psychiatry at Jefferson Davis Hospital Houston Texas
79 Six months affiliate service at Veterans Administration Hospital Salt Lake City Utah and affiliate services at State Hospital Provo Utah
80 Integrated program including service at University of Virginia Hospital Charlottesville and Veterans Administration Hospital Roanoke Va
81. Affiliate service at Southwestern State Hospital Marion and Lynchburg State Colony Lynchburg Va
82. Six months service at Medical College of Virginia—Hospital Division Richmond and service in child psychiatry
83. Six months service at Veterans Administration Hospital, American Lake Washington and six months in child psychiatry

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Numerical and other references will be found on pages 414 to 416.

24. PULMONARY DISEASES

The following services have been approved for one year of training by the Council and the Subspecialty Board for Pulmonary Diseases of the American Board of Internal Medicine

Hospitals, 107, Assistant Residencies and Residencies, 377

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
FEDERAL							
UNITED STATES ARMY							
Fitzsimons Army Hospital[1 60]	Denver	C W Tempel	2,679	21			
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE							
Freedmen's Hospital[1 3]	Washington, D C	H M Payne	109	3	1	3	
VETERANS ADMINISTRATION							
Veterans Admin Hospital[1 3]	Long Beach, Calif	K M Smith	1,868	44		2	
Veterans Admin Hospital[1]	Baltimore	R L McLean	446	18	8	8	
Veterans Admin Hospital[1 3]	Rutland Heights, Mass	S T Allison	1,218	35	1	1	
Veterans Admin Hospital[1 3]	Minneapolis	W B Tucker	646	36			
Veterans Admin Hospital[1 3]	Excelsior Springs, Mo	R K Smith	587	7	3	12	
Veterans Admin Hospital[1]	Albuquerque, N Mex	W S Klein	932	18		1	
Veterans Admin Hospital[1 2]	Castle Point, N Y	C J Kaufman	1,162	22	2	2	
Veterans Admin Hospital[1 3]	Sunmount, N Y	J W Raleigh	1,359	16	1	2	
Veterans Admin Hospital[1 3]	Oteen, N C	W S Schwartz	2,906	29	6	6	
Veterans Admin Hospital[1 3 440]	Brecksville, Ohio	G W Hobson—J A O Hale	655	8	1	1	
Veterans Admin Hospital[1 3]	Memphis, Tenn	S Phillips	384	8	3	3	
Veterans Admin Hospital[1 3]	Houston, Texas	D E Jenkins	1,710	90	2	4	
Veterans Admin Hospital[1 3]	McKinney, Texas	D O Shields	433	13	2	4	
Veterans Admin Hospital[1 3]	Richmond, Va	J P Williams	611	8		1	
Veterans Admin Hospital[1-3]	Madison, Wis	J K Curtis	826	19	5	8	
Veterans Admin Hospital[1]	Milwaukee	R A Hemphill	563	29	1	1	
NONFEDERAL							
City of Hope[1-3]	Duarte, Calif	L Tepper	492	9	5	5	400
Arroyo Del Valle Sanatorium[1-3, 4]	Livermore, Calif	J T Duncan	496	2	1	1	300
Barlow Sanatorium[1-3]	Los Angeles	H W Bosworth	232	2	2	2	100
Bret Harte Sanatorium[1 310]	Murphys, Calif	C N Reese	632	6	1	1	500
San Diego County General Hospital[1-3]	San Diego, Calif	M Brown	356	18	1	8	150
San Francisco Hospital	San Francisco						
Stanford University Service[1 3]		H C Hinshaw	478	9	1	2	175
University of California Service[1 3]		S M Farber	471	16	1	2	175
Santa Clara County Hospital[1]	San Jose, Calif	R M Manson	107		1	2	433
Fairmont Hospital of Alameda County[1-3]	San Leandro, Calif	J L Eaton	563	24	1	2	185
Tulare Kings Counties Joint Tuberculosis Hosp[1-3]	Springville, Calif	W A Winn	404	7	8	8	550
National Jewish Hospital[1-3]	Denver	S H Dressler	519		2	5	200
Norwich State Hospital[1-3]	Norwich, Conn	N L Cressy	859	20	1	1	335
Laurel Heights State Tuberculosis Sanatorium[1-3]	Shelton, Conn	E J Lynch	586	6	2	2	200
District of Columbia General Hospital[1 3]	Washington, D C	S Katz	299	12	1	8	100
Glenn Dale Hospital[1 3]	(Glenn Dale Md, P O), Washington, D C	M Weiss	1,101	24	4	4	283
City of Chicago Municipal Tuberculosis Sanitarium[1 3]	Chicago	L H Berard	2,900	65	6	6	175
Peoria Municipal Tuberculosis Sanitarium[1-3]	Peoria, Ill	D Morse	191	9	1	1	250
Rockford Municipal Tuberculosis Sanatorium[1 3]	Rockford, Ill	W J Bryan	285		1	1	
Lake County Tuberculosis Sanatorium[1-3]	Waukegan, Ill	C K Petter	215	8	1	2	200
Indianapolis General Hospital[1]	Indianapolis	J H Stygall	126		1	1	800
Sunnyside Sanatorium[1]	Indianapolis	A G Popplewell	375	9	2	2	
Healthwin Hospital[1]	South Bend, Ind	E W Custer	328	7	2	2	600
Charity Hospital of Louisiana							
Louisiana State University Unit[1]	New Orleans	E Hull	573	10	1	8	115
Tulane University Unit[1]	New Orleans	G E Burch	595	14	1	3	115
Central Maine Sanatorium[1-3 368]	Fairfield, Maine	W B Grow	352	9	1	1	75
Baltimore City Hospitals[1-3]	Baltimore	V Langeluttig	740	8	2	3	50
Boston Sanatorium[1-3]	Boston	J A Foley	1,017	10	1	5	378
Fall River General Hospital[1-3]	Fall River, Mass	H J McKenna	143		1	1	125
Middlesex County Sanatorium[1-3]	Waltham, Mass	F P Dawson	623	20	2	3	445
Westfield State Sanatorium[1-3]	Westfield, Mass	J M Houser	362	6	3	3	490
Worcester City Hospital[2]	Worcester, Mass	O Feinsilver			1	1	500
American Legion Hospital	Battle Creek, Mich	E H Roberts	577	8	1	1	
Henry Ford Hospital[1-3]	Detroit	E O Coates	523			2	225
Herman Kiefer Hospital[1-3]	Detroit	P T Chapman	2,834	64	7	9	392
Michigan State Sanatorium[1]	Howell, Mich	E W Gentles	652		4	4	735
Ingham Sanatorium	Lansing, Mich	O J Striger	170	2	1	2	400
Morgan Heights Sanatorium[1 3]	Marquette, Mich	J R Acocks	172	3	1	1	400
Wm H Maybury Sanatorium[1 3]	Northville, Mich	W L Howard	1,591	18	2	2	
Nopeming Sanatorium[1-3]	Nopeming, Mich	G A Hedberg	651	21			
Glen Lake Sanatorium[1-3]	Oak Terrace, Minn	R H Frost	982	31	4	4	210
Mississippi State Tuberculosis Sanatorium[1-3]	Sanatorium, Miss	H Boswell	901	1	2	2	300
Robert Koch Hospital[1-3]	Koch, Mo	B Friedman	1,166	10	5	15	267
St Mary's Group Hospitals[1-3]	St Louis	P A Tumulty	808	6	1	1	65
New Jersey Sanatorium for Chest Diseases[1 3]	Glen Gardner, N J	J A Smith	492	12	5	5	475
Berthold S Pollak Hospital for Chest Diseases[1-3]	Jersey City, N J	S Cohen	979		10	10	105
Bergen Pines County Hospital[1-3]	Paramus, N J	R R Little	307	31	2	2	900
Essex County Sanatorium[1 3]	Verona, N J	A M Hicks	767	12	5	5	541
Albany Hospital[1-3]	Albany, N Y	R Erickson	201	15		1	75
Kings County Hospital[1 3]							
County Division	Brooklyn	C E Hamilton	436	9	2	2	140
Edward J Meyer Memorial Hospital[1-3]	Buffalo	D R McKay	481	25		1	179
Nassau County Tuberculosis Hospital[1]	Farmingdale, N Y	J G Carlton	505	18	6	6	
Hermann M Biggs Memorial Hospital[1-3]	Ithaca, N Y	N S Lincoln	404	7	1	3	340
Triboro Hospital[1 3]	Jamaica, N Y	R H Bennett	1,332	21	12	12	140
Niagara Sanatorium[1 3]	Lockport, N Y	A N Aitken	340	9	2	3	297
Mount Morris Tuberculosis Hospital[1 3]	Mount Morris, N Y	F L Armstrong	534	22	2	2	414
Bellevue Hospital Center, Div I—Columbia University[1 3]	New York City						
Manhattan General Hospital[3]	New York City	J S Edlin	404	7	2	5	
Metropolitan Hospital[1 3]	New York City	I Epstein	693	19	5	5	140
Montefiore Hospital[1 2 303]	New York City	R G Bloch	1,039	31		7	75
Morrisania City Hospital[1 3]	New York City	E H Rubin		6	1	1	
New York City Hospital[1 3]	New York City	J S Edlin	364	7	1	2	[illegible]
St Joseph's Hospital for Chest Diseases[2-107-211]	New York City	J F McCarthy	701	5	3	3	115
Seton Hospital[1 3 450]	New York City	E H Rubin	947	8	9	9	140
Willard Parker Hospital[1 3]	New York City	D Ulmar	273	3	3	3	
Homer Folks Tuberculosis Hospital[1-3]	Oneonta, N Y	R Horton	540	14	2	3	[illegible]
Municipal Sanatorium[1 3]	Otisville, N Y	J S Edlin	826		7	7	[illegible]
Ray Brook State Tuberculosis Hospital[1-3]	Ray Brook, N Y	F Beck	651		3	3	[illegible]

Numerical and other references will be found on pages 414 to 416

24 PULMONARY DISEASES—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
Iola Monroe County Tuberculosis Sanatorium[1,3,15]	Rochester N Y	J M MacMillan	567	5	6	6	845
Schenectady County Tuberculosis Hospital[1,3]	Schenectady N Y	J M Blake	256	1	2	2	
Sea View Hospital[1,3]	Staten Island N Y	G G Ornstein	3,339	34	25	25	150
Trudeau Sanatorium[1,3]	Trudeau N Y	R S Mitchell	264	1	2	2	100
Grasslands Hospital[1,3]	Valhalla N Y	W G Childress	678	18	2	7	193
Duke Hospital[1,3,29]	Durham N C	E E Menefee	140	1		1	250
North Carolina Sanatorium for the Treatment of Tuberculosis[1,3]	McCain N C	W M Peck	1,186	14	1	2	500
City Hospital[1,3]	Cleveland	R C McKay	832	26		4	379
Benjamin Franklin Hospital[1,3]	Columbus Ohio	H L Humphrey	615	12	1	1	300
Ohio State University Hospitals							
Ohio Tuberculosis Hospital[1,3]	Columbus Ohio	R J Atwell	311	9	2	8	288
University Hospital	Columbus Ohio	R H Browning					
Sunny Acres Cuyahoga County Tuberculosis Hospital[1,3]	Warrensville Ohio	H G Curtis	875	19	3	3	250
Mahoning Tuberculosis Sanatorium[1,3]	Youngstown Ohio	H A Teitelbaum	312	9	3	3	350
Eagleville Sanatorium[1]	Eagleville Pa	J J Kirshner	386	7	2	8	
Pennsylvania State Sanatorium for Tuberculosis No 3[1,3]	Hamburg Pa	F R Lang	972	24	2	2	351
Tuberculosis League Hospital[1,3]	Pittsburgh	C H Marcy	530	8	2	2	250
Mount Alto State Sanatorium (Pennsylvania State Sanatorium No 1)[1]	South Mountain Pa	H C Dooling	1 667	17	2	11	364
Oakville Memorial Sanatorium[1,3,266]	Memphis Tenn	S C Carter	497	11	1	2	200
Parkland Hospital[1,3]	Dallas Texas	J O Armstrong	112	4	1	2	50
Blue Ridge Sanatorium[1,3]	Charlottesville Va	F B Stafford	840	5	2	2	370
Firland Sanatorium[1,3]	Seattle	R Davies	1,832	36	2	2	300
Muirdale Sanatorium[1]	Milwaukee	A V Cadden	1,244	4		2	
Wisconsin State Sanatorium[1,3]	Statesan Wis	E F White	252	1	1	1	250
Leahi Hospital[1,3]	Honolulu T H	H H Walker	951	7	3	3	350

25 RADIOLOGY

The following services have been approved by the Council and the American Board of Radiology, through the Residency Review Committee for Radiology As indicated in the column Type of Training approval has been extended in diagnostic roentgenology (D R) roentgenology (Roent.) including diagnostic and therapeutic therapeutic radiology (Ther Rad), and radiology (Rad) including roentgenology and therapeutic radiology

Hospitals, 424 Assistant Residencies and Residencies 1 484

FEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Number of X Ray Examinations	Number of Deep X Ray Treatments	Number of Superficial X Ray Treatments	Number of Radium Treatments	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY											
Letterman Army Hospital[1,3,66]	San Francisco	H I Amory	Rad	41 042	4 697	289	86			3	
Fitzsimons Army Hospital[1-66]	Denver	F Y Leaver	Roent	64,885	2 790	820	51			3	
Army Medical Center[1,3,66-6]	Washington D C	E A Lodmell									
		H L Berman	Rad	76 498	11,151	1,609	877	3	9	3	
Brooke Army Medical Center[3-66,290]	San Antonio Texas	J A Isherwood	Roent	65 419	5,217	77	185			3	
Tripler Army Hospital[1,66]	Honolulu T H	D T McCarthy	Roent	66 455	1,362	419	405	1	3	3	
UNITED STATES NAVY											
U S Naval Hospital[1,3]	Oakland Calif	C D Burroughs	Roent	40,955	2,220	262	30			2	
U S Naval Hospital[1]	San Diego Calif	W A Wulfman	Rad	17 179	3 759	75	103	4	4	3	
U S Naval Hospital[1,3]	Bethesda Md	W S Cole	Roent	35,848	4,520	131	9	2	2	2	
U S Naval Hospital[1]	Chelsea Mass	J L Hatch	Roent	21 739	782		7	1	2	2	
U S Naval Hospital[1]	St Albans N Y	S F Williams	Roent	43,538	2,976	178	392			3	
U S Naval Hospital[1-3]	Philadelphia	C Gartenlaub	Roent	46,811	1,931	48	4	3	3	2	
UNITED STATES PUBLIC HEALTH SERVICE											
U S Public Health Service Hospital[1,3,116]	New Orleans	G A Shipman	D.R.	21 456				1	3	2	
U S Public Health Service Hospital[1]	Baltimore	I Lewis	Rad	19 018	5,260	769	113	1	4	3	
National Institutes of Health—Clinical Center	Bethesda, Md		D.R							1	
U S Public Health Service Hospital[1,3]	Staten Island N Y	W M. Sennott	Roent	22 066	1 721	267		1	4	2	
DEPARTMENT OF HEALTH EDUCATION AND WELFARE											
Freedmen s Hospital[1,3]	Washington D C	C R Kelley	Rad	22,946	176	295	45	1	2	3	
VETERANS ADMINISTRATION											
Veterans Admin Hospital[1,3]	Tuskegee Ala	J J Peters	D.R	13,393				2	2	3	
Veterans Admin Hospital[1,3,9,21]	Long Beach Calif	F Isaac	Roent	60,860	4 122	1,359	2	2	6	2	
Veterans Admin Hospital[1,3]	Los Angeles	C W McClanahan	Rad	63,558	11 322	1,815	98	3	8	3	
Veterans Admin Hospital[1]	San Francisco	W W Saunders	Roent	23 014	3 097	241	14	1	3	2	
Veterans Admin Hospital[1,3,50]	Denver	C F Ingersoll	D.R	15 017	1,842	65	3	2	8	2	
Veterans Admin Hospital[1,3]	West Haven Conn	A B Skorneck	D.R	8,890	348			2	5	1	
Veterans Admin Hospital[1,3,303]	Washington D C	S R Bersak	Roent	12,790	1,180	87	5	1	3	2	
Veterans Admin Hospital[1,6]	Atlanta Ga	I R Berger	Roent	15 995	4 164	527	9	1	3	2	
Veterans Admin Hospital[1,74]	Augusta Ga	S M. Roberts	D.R	15 012	1 127	146	2	3	3	1	
Veterans Admin Hospital[1,99]	Hines Ill.	F L Hussey	Rad	89,915	15 774	541	57	3	10	3	
Veterans Admin Hospital[1,3]	Indianapolis	(See Indiana University Medical Center and Affiliated Hospitals)									
Veterans Admin Hospital[1,105]	Des Moines Iowa	P T Trier	Roent	21 485	2 120	281	3	1	3	2	
Veterans Admin Hospital[1,3,106]	Iowa City	G S Lodwick	Rad	15 871	2,252	183	5	2	6	2	
Veterans Admin Hospital[1,3,366]	Wadsworth Kan.	(See Research and Affiliated Hospitals Kansas City Mo)									
Veterans Admin Hospital[1,3]	Louisville Ky	(See University of Louisville Hospitals)									
Veterans Admin. Hospital[1,116]	New Orleans	C P Oderr	D.R	14,837	3 070	360	6	2	4	2	
Veterans Admin Hospital[1,3,1]	Fort Howard Md	G M. Tillett	D.R	11 742	1,580	12		2	2	1	
Veterans Admin. Hospital[1,3]	Boston (Jamaica Plain)	E G Wising	Roent	39,551	4 908	87	3		5	2	
Veterans Admin Hospital[1,3,10]	Dearborn Mich	(See Wayne University Affiliated Hospital)									
Veterans Admin Hospital[1,3,295]	Minneapolis	J Jorgens	Roent	41 106	3,334	1,293	16	3	10	3	
Veterans Admin Hospital[1,3,10]	Kansas City Mo	(See Research and Affiliated Hospitals)									
Veterans Admin. Hospital[1-3]	St Louis	S Kamberg	Roent	1 116	512	25			6	1	
Veterans Admin Hospital	Albany N Y		D.R							1	
Veterans Admin Hospital[1,3,15]	Brooklyn	W Schlein	Rad	27,877	4,516	844	27	2	6	2	
Veterans Admin Hospital[1,3,413]	Buffalo		D.R	19,840	2 790	92			1	2	
Veterans Admin Hospital[3]	New York City (Bronx)	J Stein	Rad	70,238	10 918	604	102	3	9	3	
Veterans Admin Hospital[1,3]	Durham N C	A T Hornsby	D.R	21 016	1,115	16	44	1	3	1	
Veterans Admin Hospital[1,3]	Cleveland	M D Sachs	Rad	85 721	3,862	122	1		6	3	

Numerical and other references will be found on pages 414 to 416

25. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training	Number of X Ray Examinations	Number of Deep X Ray Treatments	Number of Superficial X Ray Treatments	Number of Radium Treatments	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
Veterans Admin Hospital [1-3]	Dayton, Ohio	E Spiro	D R	40,038	8,047	95	10	1	1	1	
Veterans Admin Hospital [1]	Oklahoma City	S M Glasser	D R	9,741	536	130		2	4	1	
Veterans Admin Hospital [1, 3]	Portland Ore	K C Hardesty	Roent	20,894	4,092	838	13	1	2	3	
Veterans Admin Hospital [1-234-261]	Aspinwall Pa	S O Henderson	D R	20,558	6,200	225	25	2	6	1	
Veterans Admin Hospital [1, 3]	Philadelphia	G T Wohl	Roent	18,789	1,916	66	4	1	4	2	
Veterans Admin Hospital [3]	Columbia, S C	H Potozky	D R	16 000		101		1	1	1	
Veterans Admin Hospital [1, 3, 204]	Memphis Tenn	B E Greenberg	Rad	59 540	5 055	155	33	2	4	2	
Veterans Admin Hospital [1]	Nashville, Tenn	D E Sherman	Roent	21,000	1 628	197	1	2	4	2	
Veterans Admin Hospital	Dallas Texas	V D Peterson	Rad	13 645	1 049	217	83	2	4	3	
Veterans Admin Hospital [1, 3]	McKinney Texas	B K Lovell	Rad	27 456	2,722	289	148	2	4	3	
Veterans Admin Hospital	Salt Lake City	(See University of Utah Affiliated Hospitals)									
Veterans Admin Hospital [1]	White River Jct, Vt	A W Loud	Roent	55,170	4 188	378	98	1	3	2	
Veterans Admin Hospital [1, 3]	Richmond, Va	S Richman	Roent	23 230	2,743	205	9	1	3	2	
Veterans Admin Hospital [1-3]	Martinsburg W Va		D R							1	
Veterans Admin Hospital [1, 9]	Milwaukee	T J Pfeffer	Roent	86,535	6 147	692	10	1	4	2	
Veterans Admin Hospital	San Juan, P R		D R							2	
NONFEDERAL											
Jefferson Hillman Hospital [1, 3, 212]	Birmingham Ala	M B Carter	Rad	24 984	19,631	19,631	6 085	1	3	3	
Memorial Hospital [1, 3]	Phoenix, Ariz	D D Gain	D R	7 680	2,222		26	1	1	1	
University Hospital [2, 3]	Little Rock, Ark	I Meschan	Rad	15,669	6 858	1,431	10	3	9	3	
Kern General Hospital [1]	Bakersfield Calif	J W Birsner	D R	27,721	1,092	75	43	1	2	2	
Herrick Memorial Hospital [1, 3, 230]	Berkeley Calif	H P Brean									
		K Dehlinger	D R	12 169	1,742	210	20	1	2	2	
San Joaquin General Hospital [1]	French Camp, Calif	A Cove	D R	37 774		1 592	10	1	2	2	225
General Hospital of Fresno County [1, 3]	Fresno, Calif	C L Ould	D R	42 801	993	232	63	1	1	1	231
Seaside Memorial Hospital [2, 3]	Long Beach Calif	G Beckstrand	Rad	12,789	17,820			1	3	3	150
Cedars of Lebanon Hospital [1-3]	Los Angeles	E Freedman									
		H L Jaffe	Rad	17 616	5,145		24	2	8	3	225
Hospital of the Good Samaritan [1, 3]	Los Angeles	J D Camp	Rad	31,385	4 472	76	69	1	4	3	200
Los Angeles County General Hospital [1]	Los Angeles	G Jacobson	Rad	7,149	10,476	1,810	578	3	10	3	200
Presbyterian Hospital Olmsted Memorial [1, 3]	Los Angeles	W H Brown									
		C C Benz	Rad	13,048	2,570		18	1	1	1	125
Queen of Angels Hospital [1, 3]	Los Angeles	L S Goin	Rad	14,016	2,289	128	28	2	2	3	
White Memorial Hospital [1, 3]	Los Angeles	W L Stilson	Rad	11 565	4,108	662	85	2	6	3	
Highland Alameda County Hospital [1, 3]	Oakland Calif	H H Jensen	Rad	22,124	2 085		25	1	3	3	195
Collis P and Howard Huntington Memorial Hosp [1, 3]	Pasadena, Calif	R S Harrison									
		W Hill	D R	10,751	1,627			1	2	2	240
Sutter General Hospital [1, 3]	Sacramento Calif	G W Hemminger	Rad	10 089	13 401	3,086	82		2	2	220
San Diego County General Hospital [1-3]	San Diego, Calif	E Whitehead	Rad	20,246	1,825	138	37	1	2	2	150
Children's Hospital [1, 3]	San Francisco	G G King	Roent	6 504	1,162	63	22	1	1	1	125
Mt Zion Hospital [1, 3]	San Francisco	J Levitin	D R	12 604	1,131	183	9	1	1	1	150
St Francis Memorial Hospital [1, 3]	San Francisco	A A DeLorimier	Rad	16,872	3,507	1 378	26	1	1	2	300
St Mary's Hospital [1, 3]	San Francisco	C E Capp	Roent	14 029	1 450	862	11	1	2	2	160
San Francisco Hospital [1-3]	San Francisco	R V Karlan	Roent	85,862	2,013		59			3	125
Stanford University Service											
University of California Service											
Stanford University Hospitals [1, 3]	San Francisco	H S Kaplan	Rad	14,985	4,253	618	56	1	4	3	80
University of California Hospital [1, 3, 40]	San Francisco	R S Stone	Rad	87 446	8 132	639	866		4	3	87
Santa Clara County Hospital [1]	San Jose, Calif	J J McCort	Roent.	10 335	1,257	40	15	1	1	2	260
St John's Hospital [12]	Santa Monica, Calif	T E Hazel	D R	8,335			28	1	1	1	175
Santa Monica Hospital	Santa Monica Calif	R L Smith	Roent	22,530		6 142	38			2	
Harbor General Hospital [1, 3]	Torrance, Calif	J H Woodruff	Roent	29 842	721	169	85	1	4	2	200
Glockner Penrose Hospital [1, 3]	Colorado Springs, Colo	J W McMullen	Ther								
		J A del Regato	Rad	16,017	9 447	1 049	11	3	5	3	200
St Francis Hospital [1, 3]	Colorado Springs, Colo	V L Bolton	Roent	6,422	1,411	536	9	1	1	2	150
General Rose Memorial Hospital [1, 3]	Denver	M H Levine									
		J H Weiss	D R	10,752	1,341			1	1	1	160
Presbyterian Hospital [1, 3]	Denver	K D A Allen	Roent	9 593	4,637	76	63	1	1	3	150
St Joseph's Hospital [1]	Denver		Rad							1	
St Luke's Hospital [2, 3]	Denver	W P Stampfli	Roent	10,703	1 982		12	1	2	2	150
University of Colorado Medical Center			Rad							3	
Colorado General Hospital [1, 3, 23]	Denver	R R Lanier		24 892	8,621	855	141	3	9		150
Denver General Hospital [1, 3, 23]	Denver	L Wurtzebach		30,346	1 825	100	31				
Bridgeport Hospital [1, 3]	Bridgeport Conn	J J Esposito	Rad	15 468	1,780		86	1	2	2	
Hartford Hospital [1, 3]	Hartford Conn	R T Ogden	Rad	84,042	10 092		78	1	3	3	60
Grace New Haven Community Hospital [1-3]	New Haven, Conn	A H Janzen									
		R L Lawman	Rad	50 487	6,130	416	206	2	8	3	50
Hospital of St Raphael [3]	New Haven, Conn	R Shapiro	Rad	18 441	3 281	330	102	2	6	3	125
St Mary's Hospital	Waterbury, Conn	K R Kaess	Roent	16,770	2 290		21	1	3	1	225
Waterbury Hospital [1]	Waterbury, Conn	J M James	Roent	14 301	1 775		29	1	2	2	225
Delaware Hospital [1, 3]	Wilmington, Del	W W Lattomus	Rad	22,703	3 688	89	158	1	3	3	180
Central Dispensary and Emergency Hospital [1-3]	Washington, D C	J E Wissler	Rad	14,225	2,203	400	11	1	3	3	200
District of Columbia General Hospital [1-3]	Washington, D C	S Newman	D R	38,412	937	40	50	2	4	1	100
Doctors Hospital [1, 3]	Washington D C	F O Coe	Rad	21,258	8,207	1,307	107		4	3	150
Garfield Memorial Hospital [1, 3]	Washington, D C	A O Hampton	Rad	15 314	5 183	1 004	20	2	5	3	200
Georgetown University Hospital [1, 3]	Washington, D C	W E Baensch	Rad	20 646	5 536	250	13	6	8	3	
George Washington University Hospital [1-3]	Washington D C	W Stanbro	Rad	17,821	5,010	333	17		4	3	120
Duval Medical Center [1, 3]	Jacksonville, Fla	I Isaacs	D R	15 978	3,030	292	58	1	1	1	150
St Luke's Hospital	Jacksonville, Fla		D.R	12 603						1	
Jackson Memorial Hospital [1, 3]	Miami, Fla	H E Davis	Rad	40 230	6 472	719	98	2	6	3	75
Mount Sinai Hospital [1, 3]	Miami Beach, Fla	A G Levin	D R	8 801	792	6	25	1	1	1	250
Crawford W Long Memorial Hospital [1, 3]	Atlanta, Ga	R A Elmer	D R	17,922	1,561	310	15	1	2	2	110
Georgia Baptist Hospital [1, 3]	Atlanta, Ga	L Long	D R	14 499	2,520	400		1	2	1	200
Grady Memorial Hospital [1, 3]	Atlanta, Ga	H S Weens	Rad	43 216	6,044	360	67	2	6	3	20
Piedmont Hospital [2]	Atlanta, Ga	E Smith	D.R	6,787	385			1	1	1	
University Hospital [1, 3]	Augusta, Ga	L P Holmes									
		S W Brown	Rad	22,909	1,678	185	4	1	3	3	100
Emory University Hospital [1, 3]	Emory University, Ga	T F Leigh	Rad	17 042	9,044		97		2	3	100
Augustana Hospital [1, 3]	Chicago	D S Bellin	Roent	13,724	2,270			1	3	3	150
Chicago Wesley Memorial Hospital [1, 3]	Chicago	A H Cannon	Rad	37,914	3,273	75	78	1	3	3	60
Cook County Hospital [2, 3]	Chicago	G M Landau	Rad	95 034	16 911	3 023	98	11	11	3	175
Englewood Hospital [3]	Chicago	A J Rosenblate	Roent	10 480	889			1	1	1	
Grant Hospital [1, 3]	Chicago	A M Pantone	D R	9 434	1 489			1	1	1	150
Illinois Central Hospital	Chicago	R C Crain	Rad	28 606	4 036	306	86	1	1	1	250
Illinois Masonic Hospital [1, 3]	Chicago	J E Gillmore	Rad	20 423	2 409	209	45	1	1	3	115
Mercy Hospital	Chicago	W W Furey	Rad	15 980	10,050	591	204	2	2	2	100
Michael Reese Hospital [1, 3]	Chicago	R A Arens									
		E Uhlmann	Rad	35 359	6,000	65	2 311	4	9	3	75
Mount Sinai Hospital [1, 3]	Chicago	J Arendt	Roent	21,072	4 977	616	15		3	2	

Numerical and other references will be found on pages 414 to 416

25 RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training	Number of X Ray Examinations	Number of Deep X Ray Treatments	Number of Superficial X Ray Treatments	Number of Radium Treatments	First Year Residencies Offered[a]	Total Residencies Offered[a]	Length of Approved Program (Years)	Beginning Stipend (Month)
Northwestern University Medical Center[110]											
Passavant Memorial Hospital[1, 3, 51]	Chicago	R B Lewis	Roent	13,914	2,500	100	100			3	50
Presbyterian Hospital[1]	Chicago	F H Squire	Rad	42 058	2,869	1,801	51	1	3	3	125
Provident Hospital[1, 3]	Chicago	W P Quinn	Rad	5,954	1,121	569	13	1	3	3	200
Ravenswood Hospital[1-3]	Chicago	D L Jenkinson	Roent	11 479	2 084	206		2	2	3	75
St Anne s Hospital[1]	Chicago		D.R							2	
St Bernard s Hospital[1, 3]	Chicago	B C Cushway	Rad	10,373	2,400	416	273	1	2	2	200
St. Luke s Hospital[1, 2]	Chicago	E Jenkinson	Rad	33,550	5,996	78	12	2	6	3	
University of Chicago Clinics[1, 3]	Chicago	P C Hodges	Rad	35 741	14,258	621	114	4	12	3	175
University of Illinois Research and Educational Hospitals[1]	Chicago	R A Harvey	Rad	53 000	10,324		144	3	7	3	110
Evanston Hospital[1]	Evanston Ill	R G Willy	Rad	27,972	5 427	512	43	2	4	3	
St Francis Hospital[1, 3]	Evanston Ill	A C Ledoux	Roent	27,579	2,729	143	16	1	1	2	
Little Company of Mary Hospital[1, 3]	Evergreen Pk Ill	W W Furey	D.R	35,558	1 765	953		1	1	1	175
St. Francis Hospital[1, 2]	Peoria Ill	P R Dirkse	Roent	20 071	3 419	344	8	1	2	2	225
Swedish American Hospital[1-3]	Rockford Ill.	H W Ackemann	D.R	14,237	1,551	854	46	1	1	1	
Clinic Hospital[1, 102]	Bluffton Ind	W S Tirman	Roent	16,669	2,192		37			2	400
Protestant Deaconess Hospital[1]	Evansville Ind	A A Hobbs Jr	Roent	25 000	3 026	194	26	1	2	2	200
St Joseph Hospital[1, 3]	Ft Wayne Ind	C H Warfield	Roent	14,842	3 098	134		1	2	2	250
St Margaret s Hospital	Hammond Ind	J F Larrabee	D.R	14,369	2,356	262	14	1	1	1	300
Indiana University Medical Center Hospitals											
Indianapolis General Hospital[1, 10]	Indianapolis	W A Tosick	Rad	2 762	3,858	2,586	52	1	3	2	200
Indiana University Medical Center[1, 267]	Indianapolis	J A Campbell	Rad	28,263	6,812	336	91	4	12	3	165
Veterans Admin Hospital[1, 3]	Indianapolis	H Griffith	Roent	16 076	2 758	265	5	1	3	2	
Methodist Hospital[1, 2]	Indianapolis	H C Ochsner	Rad	39,575	3 640	8,357	6,997	1	1	3	273
St Elizabeth Hospital[1, 3]	Lafayette Ind	W G Hunsberger	Roent	9 704	1 642	229	33	1	2	2	175
Ball Memorial Hospital[1]	Muncie Ind	B W Stocking	Roent	16 496		3,249	41	1	1	2	200
Iowa Methodist Hospital[1, 3, 107]	Des Moines Iowa	T Burcham	Rad	12,320	1,255		25	1	2	3	150
University Hospitals[1, 3]	Iowa City	H D Kerr	Rad	55,561	14,586		101	2	6	3	75
University of Kansas Medical Center[1]	Kansas City Kan	G Tice	Rad	52,084	6,849	617	117	3	5	3	
St Francis Hospital[1, 3]	Wichita Kan	J R Kline	D R	14,639	2 641	834		1	2	2	275
Wesley Hospital[1, 2]	Wichita Kan	N C Nash	Rad	14 049			30	1	1	1	150
University of Louisville Hospitals											
Louisville General Hospital[1, 3]	Louisville Ky	E L Pirkey		38,503	2,731	30	33	1	4		83
Veterans Admin Hospital[1, 2]	Louisville Ky	E R Seitz		18,898	1 693	231	19	1	3		
Norton Memorial Infirmary[1, 3]	Louisville Ky	J C Bell	Rad	10 027	2,795	167	18	1	1	1	200
St Joseph Infirmary[1, 3]	Louisville Ky	S E Johnson	Rad	16,203	8,340	1,370	156		4	3	185
Charity Hospital of Louisiana[1]	New Orleans	M. Garcia	Rad	61,204	53,317	3 731	324	5	15	3	100
Ochsner Foundation Hospital[1]	New Orleans	E H Little	Rad	47,576	2,930	251		2	4	3	200
Southern Baptist Hospital[1]	New Orleans	L J Bristow Jr	Rad	22,856	5,155	428	46	1	3	3	225
Touro Infirmary[1, 116]	New Orleans	A Payzant	Rad	25 637	2 825	213	64	1	3	3	100
Confederate Memorial Medical Center[1]	Shreveport La	W Snow	Rad	24,683	9,579		82	2	6	3	60
Eastern Maine General Hospital[1]	Bangor Maine	H A Smith	Roent	17,844	2,465	616	17	1	1	2	100
Central Maine General Hospital[1]	Lewiston Maine	C F Miller	Roent	11 004	1,556	179	73	1	2	2	150
Maine General Hospital[1]	Portland	J Spencer	Rad	17,822	2,930	57	29	1	2	3	
Baltimore City Hospitals[1, 3]	Baltimore	J DeCarlo	D.R	44,568	845	467	5	2	3	2	50
Johns Hopkins Hospital[1, 3, 129, 234]	Baltimore	R H Morgan	Rad	67 757	12,008		226		8	3	20
Mercy Hospital[1, 3]	Baltimore	E R Dana	Roent	13,558	1,576		25	1	1	1	
Sinai Hospital[1, 2]	Baltimore	J O Salik	Rad	17,259	1,345		29	1	3	2	110
Union Memorial Hospital[1, 3]	Baltimore	W B Firor	D R	12,851				1	1	1	115
University Hospital[1, 2]	Baltimore	J M. Dennis	Rad	35 017	6,522		168	1	3	3	50
Washington County Hospital[1, 12, 124]	Hagerstown Md	S H Macht	D.R	11 772	1,676	372	23	1	1	1	250
Beth Israel Hospital[1, 3]	Boston	S Robins									
		F G Fleischner	Roent	21,921	2,021	161	8	2	5	2	100
Boston City Hospital[1, 2]	Boston	M Ritvo	Rad	93,010	4,626	464	25		11	3	132
Children s Medical Center[1, 2]	Boston	B D Neuhauser	Roent	23,500	3 000				2	2	42
Faulkner Hospital[1, 3, 137]	Boston	L E Hawes	Roent	9 041	1 169	20		1	2	2	132
Lahey Clinic[1, 3]	Boston	M I Smedal	Roent	64,912	11,993	70	6	2	6	2	150
Massachusetts General Hospital[1, 3]	Boston	L L Robbins	Rad	47,167	15,938		135	2	6	3	
Massachusetts Memorial Hospitals[1-3]	Boston	G Levene	D.R	44,122	2,548		5	1	4	2	100
New England Center Hospital[1, 3]	Boston	A Ettinger	D.R	35,903			21		3	2	100
New England Deaconess Hospital[1, 3, 131]	Boston	J H Marks	Roent	10,664	3 185	123	49	1	3	3	135
Peter Bent Brigham Hospital[1, 2, 3, 9]	Boston	M C Sosman	Rad	23,519	2 451		18	2	9	3	167
St Elizabeth s Hospital[1, 3]	Boston	W Carey	D.R	16,125	965	6	26	1	1	1	125
Cambridge City Hospital[1, 3]	Cambridge Mass	F A Herzan	Rad	14,588	695		2		2	1	160
Mount Auburn Hospital	Cambridge Mass	R Schatzki	Roent	16 626	2,341	149	12		1	1	125
Lawrence General Hospital[1-3]	Lawrence Mass	G V West	Roent	13,854	2,308	184		1	3	1	175
Lynn Hospital[1, 2]	Lynn Mass	H Osgood	Roent	20,583	3,171		10		2	3	150
Newton Wellesley Hospital[1, 3]	Newton Lower Falls Mass	C Liebman	Roent	13 469	1 438		10	1	2	2	170
Salem Hospital[3, 131, 135, 13]	Salem Mass	S A Wilson	Roent	13,154	1 771	445	1	1	3	3	125
Springfield Hospital[1-3]	Springfield Mass	R A Grugan	D.R	12,897	1,269	66	25	1	1	1	125
Memorial Hospital[1, 3]	Worcester Mass	W J Elliott	Roent	12 657	2 648		16	1	1	1	100
St Joseph Mercy Hospital[1, 3]	Ann Arbor Mich	S W Donaldson	Rad	23,298	1 420	215	23	1	3	3	200
University Hospital[1, 2]	Ann Arbor Mich	F J Hodges	Rad	49 091	10 473	690	170	4	12	3	140
Leila Y Post Montgomery Hospital[1]	Battle Creek Mich	S P Barden	Rad	12,954		2,832	40	1	2	3	273
Children s Hospital[1, 3]	Detroit	W A Evans	D.R	8 453		7			1	1	
Grace Hospital[1, 3]	Detroit	H A Jarre	Rad	35 477	5 627	1 494	40	1	3	3	225
Harper Hospital[1, 2]	Detroit	L Reynolds	Rad	25,875	19,959	450	363	3	9	3	225
Henry Ford Hospital[1, 2]	Detroit	H P Doub	Rad	69,103	4,532	1 411	76	3	9	3	225
Jennings Memorial Hospital[1, 2]	Detroit	F C Jewell	D.R	13,954	994		26	1	1	2	350
Mount Carmel Mercy Hospital[1, 3]	Detroit	J M Grace	Roent	44,198	4,243	163	35	1	2	2	225
Providence Hospital[1, 3]	Detroit	W A. Irwin	Rad	19,504	3,256	3 401	159	1	3	3	250
Sinai Hospital	Detroit		D.R							1	
Wayne University Affiliated Hospitals											
Veterans Admin Hospital[1, 2, 150]	Dearborn Mich	E E Levine	Roent	33 579	4 735	117	1	2	6	2	
Detroit Memorial Hospital	Detroit										
Herman Kiefer Hospital[1, 3]	Detroit	C C Birkelo	D.R	55,519				1	1	1	292
Receiving Hospital[1, 2]	Detroit	J E Lofstrom	Rad	47,242				3	9	2	254
Wayne County General Hospital and Infirmary[1, 2]	Eloise Mich	J Zbikowski	D.R	30 453	2,116	53	12	1	3	1	277
Hurley Hospital[1]	Flint Mich	D B Limbach	Rad	45 053	6,335	1,110	35	2	6	3	325
Blodgett Memorial Hospital[1, 3, 146]	Grand Rapids Mich	H C Jones	Roent	14,912	4 191	23	44	1	2	2	200
Butterworth Hospital[1]	Grand Rapids Mich	E C Wabby	Rad	14,721	1 458	67	155	1	2	2	225
Hackley Hospital[1]	Muskegon Mich	L E Holly	Rad	18 049	4,355		81	1	3	3	150
St Joseph Mercy Hospital[1-3]	Pontiac Mich	E L Keefe	D.R	25,234	2,958		23			1	
Beyer Memorial Hospital	Ypsilanti Mich.	W R Reksham	D.R	14,342	914	20	14	1	1	1	220
Northwestern Hospital[1, 3]	Minneapolis	C O Hansen	Roent	13 117				1	1	2	250
Swedish Hospital[1, 2]	Minneapolis	C T Nordin									
		L C Idstrom	Rad	29,173	4,572		53	2	2	3	200
University of Minnesota Hospitals[1, 2]	Minneapolis	L G Rigler	Rad	42,970	9,223	1 077	155	3	9	3	175
Mayo Foundation[1, 2]	Rochester Minn	H M. Weber	Rad	59 655	25,212	820	1,516	8	25	3	150
Charles T Miller Hospital[1, 186]	St Paul	H O Peterson	Rad	14,612	8 456		8 456	1	3	3	155

Numerical and other references will be found on pages 414 to 416

25. RADIOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Number of X Ray Examinations	Number of Deep X Ray Treatments	Number of Superficial X Ray Treatments	Number of Radium Treatments	First Year Residencies Offered	Total Residencies Offered	Length of Approved Program (Years)	Beginning Stipend (Month)
St Joseph's Hospital[1, 3]	St Paul	J P Medelman	Roent	13,018	2,465	68	13	1	1	1	163
Kansas City General Hospital No 1[1, 3]	Kansas City, Mo	J W Barry	Rad	21 992	1,389	285	30	1	3	3	150
Menorah Hospital Medical Center	Kansas City, Mo	D Dann	Roent	16,001	1,798	449	42	1	2	2	200
Research and Affiliated Hospitals											
Veterans Admin Hospital[1, 3]	Wadsworth, Kan	I H Lockwood	Roent	22,456	3,457	15	2	4	10	2	
Children's Mercy Hospital	Kansas City, Mo										
Kansas City General Hospital No 2	Kansas City, Mo	I H Lockwood	D R	13,412	221		4		1	3	
Research Hospital[1, 3]	Kansas City, Mo	I H Lockwood	Rad	23 049	10,821	3,607	667	4	12	3	220
Veterans Admin Hospital[1, 7]	Kansas City, Mo	A Wolkin	Rad	19 561	1 061	116		1	3	1	
St Joseph Hospital[3]	Kansas City, Mo	C E Virden	Rad	14,785	3,453	100	110	1	2	3	200
St Luke's Hospital[1, 3]	Kansas City, Mo	L A Scarpulino	Roent	11,721	1,721	84	24	1	3	3	175
Barnes Hospital[1, 2]	St Louis	H Wilson	Rad	61,396	16,852	391	862		10	3	100
De Paul Hospital[1, 3]	St Louis	E C Ernst, Sr	Rad					1	2	3	[illegible]
Homer G Phillips Hospital[1, 3]	St Louis	W E Allen, Jr	Rad	23 051	1,863	140	94	1	3	3	138
Jewish Hospital[1, 3]	St Louis	H R Senturia	Rad	13 116	5,948	393	68	1	1	2	100
St Louis City Hospital[1-3]	St Louis	D Weir	Rad	46,600	3,409		233	2	4	3	187
St Luke's Hospital[1, 2]	St Louis	O C Zink	Roent	12,199	1 612	20	77	1	1	3	200
St Mary's Group of Hospitals[1, 3]	St Louis	L Sante	Rad	27,852	3,977	258	104	1	3	3	65
Creighton University Center											
Creighton Memorial St Joseph's Hospital[3]	Omaha	J F Kelly, Sr	Rad	13,507	2,108		80	1	3	3	115
St Catherine's Hospital[1-]	Omaha	J F Kelly, Sr	Roent	2,502	844	92	10	1	1	3	
Nebraska Methodist Hospital[1-3]	Omaha	H B Hunt	Rad	10,510	4,727	951	80	1	1	3	200
University of Nebraska Hospital	Omaha	H B Hunt	Rad	11 195	2,772	220	62	1	3	3	
Mary Hitchcock Memorial Hospital[1, 3]	Hanover N H	W C MacCarty, Jr	Rad	55,179	4,188	878	98	1	3	3	170
Atlantic City Hospital[1, 3]	Atlantic City N J	R A Bradley	Roent	9,785	3 328	330	65	1	1	1	250
Cooper Hospital[1, 3]	Camden, N J	P D Gilbert	Rad	24 432	4,478	288	65	1	1	2	200
Hackensack Hospital	Hackensack N J		Roent							2	
Medical Center Jersey City Hospital[1, 3]	Jersey City, N J	H J Perlberg	Roent	38,502	10,130	390	195	4	6	3	120
Burlington County Hospital[1-3]	Mt Holly, N J	H P Kane	Roent	6,796	990	50	8	1	1	1	
Harrison S Martland Medical Center[1-3]	Newark, N J	P J Santora	Roent	15,996	2,308	124	16	1	2	1	150
Hospital of St Barnabas and for Women and Children[1, 3]	Newark, N J	P J Gianquinto	Roent	7,803	1,531	334	19	1	2	2	150
Newark Beth Israel Hospital[1-3]	Newark, N J	N J Furst	Rad	29 579	5 417	171	89	1	1	3	75
Orange Memorial Hospital[1, 3]	Orange, N J	W H Seward	Roent	15 968	4 188	1,548	21	1	1	1	125
Mercer Hospital[1, 3]	Trenton, N J	M P Mains	Roent	9 417	1,316	55			1	3	150
Albany Hospital[1, 3]	Albany, N Y	T F Roach	Rad	24 630	8,246		92	2	4	2	75
Brooklyn Hospital[1, 3]	Brooklyn	J H Wentworth	Rad	18,610	2,035	225	35	1	3	3	100
Cumberland Hospital[1-3, 18]	Brooklyn	E Mendelson	D.R	18 903				1	3	2	
Jewish Hospital[1, 3]	Brooklyn	S Schwartz	Rad	23,790	2,435	140	26	1	4	3	75
John E Jennings Hospital[1, 3]	Brooklyn	A B Friedmann	Ther Rad	6 724	13,696	317	81	4	4	3	
Kings County Hospital[1, 3]	Brooklyn	L Harrington									
		A B Friedmann	Rad	29,386	10,556	1,098	63	3	6	3	98
Long Island College Hospital[1-3]	Brooklyn	A L L Bell	Rad	23,000	8,609	80	45	1	3	3	
Maimonides Hospital[1, 3]	Brooklyn	M Slobodkin	D.R	23 010	578	26	23		2	2	75
Methodist Hospital[1, 3]	Brooklyn	R H Smith	Roent	11,277	1,488	55	13	1	2	2	75
Buffalo General Hospital[1, 3]	Buffalo	G J Culver	Rad	25,529	7,009		102	2	4	3	125
Deaconess Hospital[1, 3]	Buffalo	R E Seibel	Roent	4,677	590	15		1	1	2	250
Edward J Meyer Memorial Hospital[1, 3]	Buffalo	E G Eschner	Roent	33,009	1,242	745	14	1	4	3	179
Roswell Park Memorial Hospital[1, 3]	Buffalo	W Murphy	Ther Rad								
		E C Lasser	Diag Roent	10 737	18,083	2,641	309	1	4	3	275
Clifton Springs Sanitarium[1, 3]	Clifton Spgs, N Y	J M Flanagan	Roent	5,653	733	79	1	1	2	1	100
Meadowbrook Hospital[1]	Hempstead, N Y	H R Zatzkin	Rad	28,850	8 241	645	28	1	3	3	225
Queens General Hospital[1, 3]	Jamaica, N Y	A V Shapiro									
		L B Goldman	Rad	33,513	4,488	1 380	56	2	4	3	98
Charles S Wilson Memorial Hospital[1-3]	Johnson City, N Y	B D Jay	Rad	20 148	1 326	851	107		2	2	175
Mount Vernon Hospital[3]	Mount Vernon, N Y	J J Pileggi	Roent	12,300	660	38	13	1	1	2	150
New Rochelle Hospital[1, 3]	New Rochelle, N Y	J F Miller	Roent	17,745	2,218	22	11	1	1	2	175
Bellevue Hospital Center											
Division III—New York University College of Medicine[1, 3]	New York City	M Poppel	Rad	31,352	11,099	713	136	6	12	3	98
Beth David Hospital[1-3]	New York City	M Birnkrant	D R	8,720				1	1	1	
Beth Israel Hospital[1, 3]	New York City	A J Bendick	D.R	15,240	1,955	140	5	2	3	2	185
Bronx Hospital[1, 3]	New York City	A J Bernstein									
		J R Fried	Roent	16,149	2 486	272	6	1	2	2	100
Doctors Hospital[1-3]	New York City	A J Tillinghast	Roent	6 474	1 017		6	1	1	1	200
Flower and Fifth Avenue Hospital[1, 3]	New York City	F J Borrelli	Rad	37,904	1,213	210	141	1	4	3	
Francis Delafield Hospital[1, 3, 208]	New York City	R Golden	Rad	9,039	14,006	349	23	3	9	3	98
French Hospital[1-3]	New York City	E Claiborne	Roent	11,302	1,042			1	2	2	100
Goldwater Memorial Hospital[1-3]	New York City	H K Taylor	D R	10,898	1,022	83		2	3	1	90
Harlem Hospital[1-3]	New York City	I Landsman									
		I Arons	Rad	68 614	4,687	2,853	19	1	8	2	98
Hospital for Joint Diseases[1-3]	New York City	M M Pomeranz	Rad	25,306	5 158	233	24	1	2	3	70
Lenox Hill Hospital[1, 3]	New York City	F H Ghiselin	Roent	22,900	3,650	122	16	1	2	3	160
Lincoln Hospital[1, 3]	New York City	R Feig	Roent	30,264	204	56	7	1	2	2	90
Memorial Center for Cancer and Allied Diseases[1-3]	New York City	R Sherman									
		J J Nickson	Rad	59,411	43 081		465	4	17	2	98
Metropolitan Hospital[1, 3]	New York City	F J Borrelli	D R	35,789				2	8	2	93
Montefiore Hospital[1-3]	New York City	J Fried									
		S Fineman	Rad	89 564	11 527	3 450	60	4	7	3	75
Morrisania City Hospital[1-3]	New York City	J Fierstein	Rad	21 288				1	1	2	
Mount Sinai Hospital[1, 3]	New York City	B S Wolf	Rad	41,227	7 749		93	2	6	3	90
New York City Hospital[1-3]	New York City	P Strax	D.R	18,120				1	2	2	93
New York Hospital[1-3, 48]	New York City	J A Evans	Rad	80 744	9,995	431	65	4	13	3	31
New York Polyclinic Medical School and Hospital[1-3]	New York City	W H Shehadi	Roent	10,662	1,441	261	27	1	2	2	100
New York University Bellevue Medical Center											
University Hospital[1, 3]	New York City	M H Poppel	Rad	26 538	6,140	10,200	420	2	4	3	85
Presbyterian Hospital[1, 3]	New York City	R Golden	Rad	3,619	19,418	56	170	4	12	3	
Roosevelt Hospital[1-3]	New York City	A A Dunn	Rad	41 720	3 291	94	4,981	1	3	3	116
St Luke's Hospital[1-3]	New York City	H F Hempel	Rad	85 335	4 182		85	2	6	3	75
St Vincent's Hospital[1-3]	New York City	F F Ruzicka, Jr	Rad	81 499	2,957	644	17	2	4	3	50
Sydenham Hospital[1, 3]	New York City	J Moseley	Roent	8,830	10	60	23	1	2	1	98
United Hospital[1, 3]	Port Chester, N Y	T S West	Roent	11,909	2 695	36		1	1	1	[illegible]
Genesee Hospital[1-3]	Rochester, N Y	G J Baron	Roent	20,218	2 200	146	15	1	1	3	[illegible]
Rochester General Hospital[1-3]	Rochester, N Y	E F Merrill	Rad	23 020	6,046	1 267	46	1	3	3	[illegible]
		A L Grohowski	Roent	19 340	710	111	178	1	2	2	
St Mary's Hospital[1, 3]	Rochester, N Y	A V Winchell									
Strong Memorial Rochester Municipal Hospitals[1-3, 212-21]	Rochester, N Y	G H Ramsey	Rad	28,260	4 694	425	234		8	3	[illegible]

Numerical and other references will be found on pages 414 to 416

25 RADIOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Number of X Ray Examinations	Number of Deep X Ray Treatments	Number of Superficial X Ray Treatments	Number of Radium Treatments	First Year Residencies Offered*	Total Residencies Offered*	Length of Approved Program (Years)	Beginning Stipend (Month)
Ellis Hospital[1, 2]	Schenectady N Y	K L Mitton	Roent	944	944		33	1	1	1	150
State University of New York Medical Center[1]	Syracuse N Y	C Hale	Roent	34 742	5 759	70		2	5	3	191
Grasslands Hospital[1, 2]	Valhalla N Y	A G Debbie	Roent	18,351	2,194	1,374	31	1	3	3	150
St. John's Riverside Hospital	Yonkers N Y	J E Miller	Roent						1	2	150
North Carolina Memorial Hospital[1]	Chapel Hill, N C	E H Wood	Rad	19,245	1,379	56	104		3	3	145
Charlotte Memorial Hospital[1, 2]	Charlotte N C	W C A Sternbergh	Roent	14,184	1,202	40	26	1	2	1	200
Duke Hospital[1, 2, 229]	Durham N C	R J Reeves	Rad	61,283	9,105	590	210	4	11	3	42
Watts Hospital[1, 2]	Durham N C	S P Perry	Rad	16,260	2,167		24	1	3	3	100
North Carolina Baptist Hospital[1, 2]	Winston Salem N C	J R Andrews	Rad	18,836	2,378	47	38	2	6	3	125
Bismarck Hospital[2]	Bismarck N D	H M. Berg	Rad	29,146	1,992	715	59	1	3	3	300
City Hospital[1, 2]	Akron Ohio	F T Moore	Rad	39,551	10,351	243	85	2	4	3	235
Peoples Hospital[1, 2]	Akron Ohio	C J Miller	Rad	14,162	4 765	157	30	1	1	3	250
Aultman Hospital[1, 2]	Canton Ohio	S Larson	Rad	21,854	2,503	834	44	1	1	1	225
Mercy Hospital[1, 2]	Canton Ohio	T J Dodd	D R	22 411	3,563		56	1	3	3	200
Cincinnati General Hospital[1-2]	Cincinnati	B Felson	Rad	44 679	5 712	267	50	4	10	3	
Good Samaritan Hospital[1, 2]	Cincinnati	J E McCarthy	Rad	25 157	6,142	68	69	1	2	2	175
Jewish Hospital[1, 2]	Cincinnati	L Rosenberg	Rad	18,335	2,032	244	94	1	3	3	145
City Hospital[1-3]	Cleveland	H Hauser	Rad	34,895	3 731	1,200	93	2	8	3	140
Cleveland Clinic Hospital[1, 2]	Cleveland	C R Hughes	Rad	6,364	4 000	1,500	60	4	12	3	175
Lutheran Hospital[1, 2]	Cleveland	J A Groh	Roent	11 434	2,794	89	9	1	3	3	175
Mount Sinai Hospital[1, 2, 436]	Cleveland	H A Mahrer	Roent	23,941	17	4 173		1	3	3	215
St Luke's Hospital[1, 2]	Cleveland	D D Brannan	Rad	33,137	4 077	854	23	1	3	3	120
St Vincent Charity Hospital[1, 2]	Cleveland	E J O Malley	Rad	18,126	1 661		25	1	3	3	210
University Hospitals[1, 2]	Cleveland	H L Friedell	Rad	49 002	8 029	500	69	2	6	3	125
Ohio State University Hospitals University Hospital[1, 2, 235, 40]	Columbus Ohio	J L Morton	Rad	44,685	21 405	221	250	3	11	3	150
Miami Valley Hospital[1, 2]	Dayton Ohio	G A Nicoll	Rad	18,611	2,189		45	1	3	3	165
St Elizabeth Hospital[1]	Dayton Ohio	R Land	Rad	17 023	1,123			1	1	2	225
Huron Road Hospital[1, 2]	East Cleveland	W D Heinrich	Roent	23 619	2,048	357	31	1	2	2	210
Elyria Memorial Hospital[1, 2]	Elyria Ohio	D Russell	D R					1	3	1	270
St Vincent's Hospital[1-3]	Toledo Ohio	F C Curtzwiler	D.R	36 741	452		15	1	1	1	225
St Elizabeth's Hospital[1, 2]	Youngstown Ohio	S Tamarkin	Roent	16,366	2,526	160	17	1	1	1	300
Youngstown Hospital[1, 2]	Youngstown Ohio	E C Baker	Rad	25 758	7,876	538	21	1	3	3	125
University Hospitals[1-3-47]	Oklahoma City	P E Russo	Rad	28,990	8,879	2,900	9	3	8	3	95
Wesley Hospital[1, 246]	Oklahoma City	E H Kalmon	D.R	9 498	2,122	40	42	1	1	1	225
St John's Hospital[1, 2]	Tulsa Okla	L M. Pascucci	Rad.	11,200	1,559	93		1	3	3	
Providence Hospital[1, 2]	Portland Ore	S Rees	D R	12,895	1,587		17	1	3	1	175
St Vincent's Hospital[1, 2]	Portland Ore	S E Rees	Roent	11,897	1,207		23	1	3	3	175
University of Oregon Medical School Hospitals and Clinics[1, 2]	Portland Ore	C T Dotter	Rad	34 477	3 176			2	6	3	85
Abington Memorial Hospital[1, 2]	Abington Pa	J D Zulick	Roent	18,956	2,939		57		1	3	100
Allentown Hospital	Allentown Pa		D R							1	
Sacred Heart Hospital	Allentown Pa		Rad							3	
Bryn Mawr Hospital[1, 2]	Bryn Mawr Pa	R S Bromer	Rad	16,970			178	1	3	3	100
George F Geisinger Memorial Hospital[1, 2]	Danville Pa	C L Hinkel	Rad	16,279	1,391	2 000	41		4	3	125
Thos M Fitzgerald Mercy Hospital	Darby Pa		Rad							3	
St. Vincent's Hospital[1, 2]	Erie Pa	R Bacon	Rad	13,285	1,272	25	17	1	3	3	100
Albert Einstein Medical Center Northern Division[1, 2]	Philadelphia	J Gershon Cohen	Rad	28 003	5 487	1,205	55	3	3	3	150
Southern Division[1-3]	Philadelphia	H. J Isard	Rad	1,169	2 050		26	2	2	3	150
American Oncologic Hospital[1, 2]	Philadelphia	S G Castigliano	Ther Rad		7,967	666	65	2	2	3	250
Chestnut Hill Hospital[1, 2]	Philadelphia	R P Barden	Roent	8,933	1 648	245	15	1	1	1	200
Episcopal Hospital[1, 2]	Philadelphia	H Fisher	Rad	19,526	1 715		84	2	2	3	100
Frankford Hospital[1, 2]	Philadelphia	M T Woodruff	D.R	9 638	233	6	13	1	1	1	300
Germantown Dispensary and Hospital[1, 2]	Philadelphia	B R Young	Rad	25,190	3 772	1,258	62	1	3	3	150
Graduate Hospital of the University of Pennsylvania[1, 2]	Philadelphia	A. Finkelstein	Rad	21,898		4 095	29	6	11	3	35
Hahnemann Medical College and Hospital[1, 2]	Philadelphia	J S Lehman	Rad	34 730	3 426	207	379	2	6	3	
Hospital of the University of Pennsylvania[1, 2]	Philadelphia	E P Pendergrass	Rad.	14,530	3,557	14,255	125	8	24	3	
Hospital of the Woman's Medical College of Pennsylvania[1, 2, 235]	Philadelphia	J H Vastine	Roent	8,319	1,580	22	26	1	2	3	
Jeanes Hospital[1, 2]	Philadelphia	E P Pendergrass	Rad	4,606	1 005	56	30		1	1	300
Jefferson Medical College Hospital[1, 2, 03]	Philadelphia	P C Swenson	Rad	44,547	6 754	8,379	200	4	9	3	100
Nazareth Hospital[1]	Philadelphia	J S Fetter	Roent	14,509	964	321	23	1	3	2	
Pennsylvania Hospital[1, 2]	Philadelphia	P A. Bishop	Rad	16,854	2,600	211	84	2	2	3	100
Philadelphia General Hospital[1, 2]	Philadelphia	B P Widmann	Rad	26,698	12,111	336	207		11	3	113
Presbyterian Hospital[1, 2]	Philadelphia	E.L. Lame	Rad.	9 705		2 718	43	1	3	3	150
Temple University Hospital[1, 2]	Philadelphia	W E Chamberlain	Rad	37,338	5,967	171	30	5	15	3	
Allegheny General Hospital[1, 2]	Pittsburgh	T B Childs	Roent	25,509	4,320	394	791	3	3	3	
Mercy Hospital[1, 2]	Pittsburgh	C R Perryman	Rad	32,439	6 539			2	6	3	175
Montefiore Hospital[1, 2]	Pittsburgh	M F Goldsmith	Roent.	14 412	3 005	374		2	2	3	100
Pittsburgh Medical Center	Pittsburgh		Rad							3	
St Francis Hospital[1, 2]	Pittsburgh	G H Alexander	Roent	44,533	2,907	13	30	1	3	3	150
Western Pennsylvania Hospital[1, 2]	Pittsburgh	D H Rice	Rad	19 021	3 717	519	40	1	3	3	225
Reading Hospital[1, 2]	Reading Pa	G W Chamberlin	Rad	12,929	4 483		31	2	6	3	225
St Joseph's Hospital[1, 2]	Reading Pa	W W Werley N Carabello	Roent	10,375	2 785		33	1	1	1	250
Robert Packer Hospital[1, 2]	Sayre Pa	J T Littleton	Rad	27 423	3,349	1,135	19	2	5	3	150
Sharon General Hospital[1, 2]	Sharon Pa	H A Steiner	Roent	12,630		1,897	20	1	1	1	250
Chester County Hospital	West Chester Pa	J Gershon-Cohen	Roent	6 719	1 708	695	6	1	1	1	150
Rhode Island Hospital[1, 2]	Providence R I.	L A. Martineau	Roent	26,179	2,175	430	122	1	3	3	83
Roger Williams General Hospital[1, 2]	Providence R I.	R. R Hunt	Roent	10,349	2,805	701	49	1	1	2	
Roper Hospital[1, 2]	Charleston S C	H S Pettitt	Rad	25,954	5,207	47	52	1	3	3	83
Columbia Hospital[1, 2]	Columbia S C	G W Smith	Roent	42,800	3 441		34	1	1	1	250
Spartanburg General Hospital[1]	Spartanburg S C	H E Plenge	Rad	7,900	2,735	454	82	1	2	2	200
Baptist Memorial Hospital[1, 2]	Memphis Tenn	J E Whiteleather	Roent	22,731	2,971	657	150	2	6	3	100
John Gaston Hospitals[1, 2]	Memphis Tenn	C Heacock	Rad	36 428	3 033	275	64	2	6	3	25
Methodist Hospital	Memphis Tenn.	J C King	Roent	21 465	5,190	774	17	2	6	3	100
George W Hubbard Hospital of Meharry Medical College[1, 2]	Nashville Tenn	G J Tarleton Jr	Rad	7,113	1,025	189	64	1	3	3	125
Vanderbilt University Hospital[1, 2]	Nashville Tenn	C C McClure	Rad	22,153	3,904	157	80	2	5	3	50
Brackenridge Hospital[1, 2]	Austin Texas	J C Rude	D.R	10 424	106	954	28	1	1	1	250
Baylor University Hospital[1, 2]	Dallas Texas	J E Miller	Rad	23 455	6 073		137	2	4	3	105
Methodist Hospital[1, 2]	Dallas Texas	R H Millwee	D.R	7 420	610	50	34	1	1	1	125
Parkland Hospital[1, 2]	Dallas Texas	R S Clayton	Rad	29 425	1,119	379	86	2	5	3	125
St Paul's Hospital[1, 2]	Dallas Texas	G D Carlson	Roent	9,241	730	17	60	1	3	1	125
University of Texas Medical Branch Hosp[1, 2, 2, 4]	Galveston Texas	R N Cooley	Rad.	57 403	5,584		75	3	11	3	150
Hermann Hospital[1, 2, 8]	Houston Texas	L M Vaughn	Rad.	35,149	4,176	165	60	2	4	3	100
Jefferson Davis Hospital[1]	Houston Texas	V P Collins	Rad	48 642	1 730		106	1	3	3	50
Methodist Hospital[1, 2]	Houston Texas	C H Bruge	D.R	12,45[illegible]	1,917		43	1	3	2	100

Numerical and other references will be found on pages 414 to 416.

[illegible] Medical College

25. RADIOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Number of X Ray Examinations	Number of Deep X Ray Treatments	Number of Superficial X Ray Treatments	Number of Radium Treatments	First Year Residencies Offered [6]	Total Residencies Offered [6]	Length of Approved Program (Years)	Beginning Stipend (Month)
St Joseph's Hospital [1, 3]	Houston, Texas	P E Wigby	Rad	21,266	2,987	117	52	1	2	3	225
University of Texas M D Anderson Hospital for Cancer Research [1, 2, 3, 8]	Houston Texas	G H Fletcher	Rad	10,202	14,516	4,267	336	3	9	3	
Baptist Memorial Hospital [1-3]	San Antonio Texas	E F Lyon, Jr	D R	6 519	1 700			1	2	2	150
Santa Rosa Hospital [3]	San Antonio, Texas	F E O'Neill									
		A Thaggard	D R	18,096	1 332		120	1	2	2	150
Scott and White Memorial Hospital [1, 3]	Temple Texas	C A Stevenson	Rad	46,095	6,440	1,334	116	1	3	3	250
University of Utah Affiliated Hospitals [4]			Rad							3	
Dr W H Groves Latter Day Saints Hospital [1-3]	Salt Lake City	E R Crowder		8 480	518			1	3		175
Holy Cross Hospital [1, 3]	Salt Lake City	R R Meyer		6,918	1,233		8	1	1		155
St Mark's Hospital [1, 3]	Salt Lake City	H P Plenk		5,991	7,208	86					
Salt Lake County General Hospital [1, 3]	Salt Lake City	W R Christensen		14 483	5,453	377		2	6		135
Veterans Admin Hospital	Salt Lake City	J I Wolfson		11 616	726			1	2		
Bishop DeGoesbriand Hospital [1, 3]	Burlington, Vt	F W Van Buskirk	Roent	10,009	1,049				1	1	
Mary Fletcher Hospital [1, 3, 55]	Burlington, Vt	A B Soule, Jr	Rad	14 278	8,014	77	80		3	3	167
University of Virginia Hospital [1, 3]	Charlottesville Va	V W Archer	Roent	35,912	5 869	1,200	77	2	6	3	50
De Paul Hospital [1, 3]	Norfolk, Va	J Foster	Roent	17,020	1 464	706	11	1	3	1	200
Norfolk General Hospital [1, 7]	Norfolk Va	P B Parsons	Rad	11,892	4,243	253	181	2	4	3	175
Medical College of Virginia—Hospital Division [1, 3]	Richmond Va	F B Manderville	Rad	36,109	4,066	409	141	1	5	3	50
Providence Hospital [1]	Seattle	E A Addington	D R					1	2	2	200
			Ther								
Swedish Hospital [1, 3]	Seattle	S Cantril	Rad	9 235	8,161	1 074	182	2	6	3	
Virginia Mason Hospital [1, 3, 93]	Seattle	T Carlile	Rad	25,264	2,391	1,795	69	1	3	3	100
Sacred Heart Hospital [1, 3]	Spokane Wash	M T Harris	Rad	12,537	1 101	16	26	2	2	2	200
Madison General Hospital [1, 3]	Madison, Wis	R C Schmitz	D R	16,250	2 431	263	22	1	1	1	150
Methodist Hospital [1, 3]	Madison, Wis	W L Waskow	Roent	11,087	1,570	240	127	1	2	2	150
University Hospitals [4]											
State of Wisconsin General Hospital [1]	Madison Wis	E A Pohle									
		L W Paul	Rad	39 450	8 346	270	155	2	6	3	
St Joseph's Hospital	Marshfield, Wis	J M Wickham	Rad	4 964	564		13	1	1	3	300
Columbia Hospital [1, 3]	Milwaukee	S A Morton	Rad	40 907			7,306	1	3	3	195
Evangelical Deaconess Hospital [1, 3]	Milwaukee	A Melamed									
		A Marck	Roent	16 304	1,991	175	10	1	1	1	250
Milwaukee County Hospital [1, 3]	Milwaukee	J L Marks	Rad	46,408	3 791	508	18	2	4	1	208
Milwaukee Hospital [1, 3, 94]	Milwaukee	H W Heike	Rad	10 932	2,274		121		1	3	150
St Joseph's Hospital [1, 3]	Milwaukee	G W Sengpiel	Roent	21,325	4,000		41	1	2	3	200
Gorgas Hospital [1, 3]	Ancon, C Z	G F Lull Jr	Roent	18 818	1,131	1,400	9	1	2	2	
Queen's Hospital [1, 3]	Honolulu, T H	L L Buzaid	Roent	8,618	1 163	557	7	1	1	3	125
San Juan City Hospital [1, 3]	San Juan P R	J L Becerra	Roent	10,820	2,820			1	1	2	150

26 SURGERY

The following services have been approved for four years of training by the Council, the American Board of Surgery and the American College of Surgeons through the Conference Committee on Graduate Training in Surgery (See also additional lists of approved services, pp 405-410)

Hospitals, 248, Assistant Residencies and Residencies, 3,231

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [6]	Total Residencies Offered [6]	Beginning Stipend (Month)
UNITED STATES ARMY							
Letterman Army Hospital [1, 3, 60]	San Francisco	W A Todd	1,809	48			
Fitzsimons Army Hospital [1, 60]	Denver	C Lyter	915	25			
Army Medical Center [1, 3, 60, 67]	Washington D C	R T Gants	704	4	3	12	
Brooke Army Medical Center [3, 60, 250]	San Antonio, Texas	W F Bowers	2,106	78			
UNITED STATES NAVY							
U S Naval Hospital [1-3]	Oakland Calif	R S Silvis	1,670	12			
U S Naval Hospital [1]	San Diego Calif	L G Bell	3 929	52	8	8	
U S Naval Hospital [1, 3]	Bethesda Md	R B Brown	2,830	40	8	6	
U S Naval Hospital [1, 62]	Chelsea, Mass	L L Haynes	1 661	7	1	4	
U S Naval Hospital [1]	St Albans, N Y	R Y Grant	1 539	5			
U S Naval Hospital [1, 3]	Philadelphia	R A Cooper	2,178	16	9	9	
UNITED STATES PUBLIC HEALTH SERVICE							
U S Public Health Service Hospital [1-3]	San Francisco	W A Williamson	2 543	35	1	5	
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE							
Freedmen's Hospital [1, 3]	Washington, D C	J R Laurey	1,014	25	3	12	
VETERANS ADMINISTRATION							
Veterans Admin Hospital [1-3, 322]	Little Rock, Ark	R J Lipin	1 412	35	2	4	
Veterans Admin Hospital [1, 3, 20]	Long Beach, Calif	J A Weinberg	2,160	29	11	11	
Veterans Admin Hospital [1, 3]	Los Angeles	J D Briggs	2,904	116	10	22	
Veterans Admin Hospital [1, 42]	San Francisco	L G Brizzolara	1,377	32	8	19	
Veterans Admin Hospital [1-3, 40, 842]	Denver	B Eisman	1 091	54	5	16	
Veterans Admin Hospital [1, 818]	West Haven Conn	A Hurwitz	860	6	8	15	
Veterans Admin Hospital [1-3, 801]	Washington D C	J G Lee	1,855	45	1	8	
Veterans Admin Hospital [72, 76]	Atlanta, Ga	J C Thoroughman	1,164	24	6	14	
Veterans Admin Hospital [1]	Hines, Ill	C B Puestow	4 865	183	21	50	
Veterans Admin Hospital [1-261]	Indianapolis	(See Indiana University Medical Center Hospitals)					
Veterans Admin Hospital [1, 3, 108]	Des Moines, Iowa	L T Palumbo	2 947	40	4	16	
Veterans Admin Hospital [1, 3, 108]	Iowa City	E S Brintnall	1,769	44	6	16	
Veterans Admin Hospital [1, 3, 800]	Wadsworth Kan	W I Hinkle	630	28	4	10	
Veterans Admin Hospital [2, 3, 334]	Louisville, Ky	J Hamilton	1 1722	30	6	18	
Veterans Admin Hospital [1, 116]	New Orleans	L K Richardson	1 231	39	4	10	
Veterans Admin Hospital [1, 3, 120]	Fort Howard, Md	J M Miller	1,191	21	2	7	
Veterans Admin Hospital [1, 3]	Perry Point Md	R T Shackelford	1,171	13	2	6	
Veterans Admin Hospital [1, 3]	Boston (Jamaica Plain), Mass	H H Faxon	2 632	78	8	24	
Veterans Admin Hospital [1-3]	Dearborn Mich	C G Johnston	2,544	100	8	25	
Veterans Admin Hospital [1, 3, 808]	Minneapolis	L J Hay	1,942	40	6	19	
Veterans Admin Hospital [1, 3]	St Louis	K B Coldwater	158	7	5	16	
Veterans Admin Hospital [1, 171]	Omaha	W P Kleitsch	1,237	22	2	8	
Veterans Admin Hospital [1, 3, 168]	Brooklyn	J J Cincotti	2,201	23	6	18	
Veterans Admin Hospital [1, 3]	Buffalo	W M Chardack	1 973	63		14	
Veterans Admin Hospital [3, 206]	New York City (Bronx)	P K Sauer	1,737	35	4	16	
Veterans Admin Hospital [1, 3]	Cleveland	C L Cogbill	1 917	63	8	16	
Veterans Admin Hospital [1, 3]	Dayton, Ohio	W G Eckman	3,614	78	5	18	

Numerical and other references will be found on pages 414 to 416

26 SURGERY—Continued

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
Veterans Admin. Hospital[1]	Oklahoma City	F A Quenzer	1,197	41	4	10	
Veterans Admin Hospital[1,3,252]	Portland Ore	R A Wise	1,540	34	4	16	
Veterans Admin Hospital[1]	Aspinwall Pa	W A Altenhoff	1,106	45	5	17	
Veterans Admin Hospital[1,3,63]	Memphis Tenn	R F Bowers	3,260	47	7	20	
Veterans Admin Hospital[1]	Nashville Tenn	R I Carlson	2,816	83	6	20	
Veterans Admin Hospital[18]	Dallas Texas	W H Pickett	1,267	32	4	8	
Veterans Admin Hospital[1,3,471]	Houston Texas	O Creech Jr	1,539	43	5	15	
Veterans Admin Hospital[1,3]	McKinney Texas	J P North	1,689	42	8	15	
Veterans Admin Hospital	Salt Lake City	J A Gubler	1 065	15	2	8	
Veterans Admin Hospital[1]	White River Jct Vt	(See Dartmouth Medical Center)					
Veterans Admin Hospital[1,3]	Richmond Va	R F MacDonald	1 736	23	2	8	
Veterans Admin Hospital[1]	Seattle	J T Payne	1,117	62	6	13	
Veterans Admin Hospital[1]	Milwaukee	M B Smith	2,172	60	3	13	

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
Jefferson Hillman Hospital[1-3,312]	Birmingham Ala	C Lyons	3,873	33	8	26	
Lloyd Noland Hospital[1,3]	Fairfield Ala	J M Slaughter	1,323	8	3	8	225
University Hospital[3,30]	Little Rock Ark	J H Growdon	1,166	29	5	16	120
Los Angeles County General Hospital[1]	Los Angeles	L A Brewer	3 691	117	1	13	200
Highland Alameda County Hospital[1,3,31]	Oakland Calif	T C Lawson	2,135	40	7	15	195
Kaiser Foundation Hospital[1,3]	Oakland Calif	A L Baritell	2,220	40	5	12	175
Mount Zion Hospital[1,3]	San Francisco	A L Brown	4,582	53	2	6	150
San Francisco Hospital							
Stanford University Service[1,3]	San Francisco	C Mathewson Jr	714	16	2	4	175
University of California Service[1,3]	San Francisco	L Goldman	680	8	4	6	175
Stanford University Hospitals[1,3]	San Francisco	E F Holman	2 431	47	2	8	80
University of California Hospital[1-3-40,330]	San Francisco	H G Bell	1,503	20		9	67
Santa Clara County Hospital[1]	San Jose Calif	J D Lamon Jr	1 196	20	2	7	200
Santa Barbara Cottage Hospital[1,3]	Santa Barbara Calif	H V Findlay	3,538	18	4	9	140
Harbor General Hospital[1,3]	Torrence Calif	S Pearson	1,295	48	4	14	200
University of Colorado Medical Center							
Colorado General Hospital[1,3,2]	Denver	H Swan	1,092	59	4	15	150
Denver General Hospital[1,3,2]	Denver	D H Watkins	797	47			
Hartford Hospital[1,3,55]	Hartford Conn	W A Standish	5 459	46	8	19	75
New Britain General Hospital[1,3]	New Britain Conn	B B Clark	5 003	28	1	4	180
Grace-New Haven Community Hospital[1,3,317]	New Haven Conn	G E Lindskog—C C Bishop	4,195	42	4	16	50
Delaware Hospital[1,3]	Wilmington Del.	C L Munson	4 820	73	2	5	180
Memorial Hospital[1,3]	Wilmington Del	J C Pierson	3 760	22	1	4	175
Central Dispensary and Emergency Hospital[1,3,330]	Washington D C	J H Lyons	2 764	14	4	10	225
District of Columbia General Hospital[1,3]	Washington D C	B Blades—R Coffey	1,398	49	2	8	100
Garfield Memorial Hospital[1,3,62]	Washington D C	W W Chase	1 606	23	1	5	210
Georgetown University Hospital[1,3]	Washington D C	R J Coffey	8 646	62	8	22	
George Washington University Hospital[1,3,5,6]	Washington D C	B Blades	6 133	45	5	11	130
Providence Hospital[1,3]	Washington D C	L Goffredi	3,526	42	1	4	200
Jackson Memorial Hospital[1,3]	Miami Fla	W C Jones	7 915	118	6	15	75
Grady Memorial Hospital[1,3]	Atlanta Ga	I A Ferguson	2,651	57	12	29	20
Piedmont Hospital[1]	Atlanta Ga	F W McRae	3,131	17	1	4	180
University Hospital[1,3]	Augusta Ga	J H Sherman	2,623	18	3	8	160
Emory University Hospital[1,3]	Emory University Ga	D C Elkin	3 786	46	6	8	165
Cook County Hospital[1,3]	Chicago	K A Meyer	15 427	155	20	20	50
Mercy Hospital[93]	Chicago	H A Oberhelman	2 162	38	4	10	100
Michael Reese Hospital[1,3]	Chicago	N N Crohn	2 720	30	2	7	50
Mount Sinai Hospital[1,3]	Chicago	L J Aries	3 720	22		5	
Northwestern University Medical Center							
Chicago Wesley Memorial Hospital[1,3]	Chicago	W G Maddock	3,344	69	2	7	50
Passavant Memorial Hospital[1,3]	Chicago	L Davis	1 425	12			50
Veterans Admin Research Hospital	Chicago	(See Listing of Veterans Admin Research Hospital in Following Section)					
Evanston Hospital	Evanston Ill.	(See Listing of Evanston Hospital in Following Section)					
Presbyterian Hospital[1]	Chicago	E M. Miller	2 639	35	6	13	125
St Luke's Hospital[1,3]	Chicago	W Van Hazel	2 786	43	6	14	50
University of Chicago Clinics[1,3]	Chicago	L R Dragstedt	2,337	85	6	18	175
University of Illinois Research and Educational Hospitals[1]	Chicago	W H Cole	1,251	39	4	13	110
Indianapolis General Hospital[1]	Indianapolis	F W Taylor	1,871	33	3	12	300
Indiana University Medical Center Hospitals							
Indiana University Medical Center[1]	Indianapolis	H B Shumacker	1,178	38	8	20	165
Veterans Admin Hospital[1,101,102]	Indianapolis	D C Strange	1,235	49	3	8	
Iowa Methodist Hospital[1,3,10]	Des Moines Iowa	T D Throckmorton	3 003	27	2	6	150
University Hospitals[1,3]	Iowa City	R T Tidrick	2 749	86	8	22	75
University of Kansas Medical Center[1]	Kansas City Kan	W Williamson	1,256	57	3	10	125
Louisville General Hospital[1,3]	Louisville Ky	R J Noer	1,539	41	6	18	83
St Joseph Infirmary[1,3]	Louisville Ky	J Harter	6 805	39	3	6	185
Charity Hospital of Louisiana							
Independent Unit[1]	New Orleans	L J O'Neil	1 757	31	2	7	100
Louisiana State University Unit[1]	New Orleans	J D Rives	2,339	46	5	18	100
Tulane University Unit[1]	New Orleans	A Ochsner	2,316	68	5	18	100
Confederate Memorial Medical Center[1]	Shreveport La	P D Abramson	2,042	21	6	16	60
Maine General Hospital[1]	Portland Maine	I M Webber	1 792	27	2	8	17
Baltimore City Hospitals[1,3]	Baltimore	O C Brantigan	2,323	39	6	18	50
Church Home and Hospital[1,3-1,2,1,4]	Baltimore	C R Edwards	3 651	21	3	7	200
Franklin Square Hospital[1,3]	Baltimore	H E Wilgis	2 633	9	3	6	
Johns Hopkins Hospital[1,3,371]	Baltimore	A Blalock	3,275	58		11	20
Mercy Hospital[1,3]	Baltimore	W D Wise	4,575	45	2	6	225
Sinai Hospital[1,3]	Baltimore	H M Kern	2,901	25	3	9	110
Union Memorial Hospital[1,3]	Baltimore	G G Finney	5,171	29	4	8	115
University Hospital[1,3,130]	Baltimore	C R Edwards	2,716	43	6	19	50
Beth Israel Hospital[1,3]	Boston	J Fine	2,394	34	5	13	100
Boston City Hospital[1,3,374]	Boston						
I—Surgical Service	Boston	A J A Campbell	2,730	35	8	20	112
III—Surgical Service	Boston	E E O'Neil	2,067	37	8	20	112
V—Surgical Service	Boston	C C Lund	2,390	36	8	20	112
Carney Hospital[1,3,184]	Boston	A McK. Fraser—W E. Browne	2,002	18	3	6	125
Massachusetts General Hospital[1,3,5,6]	Boston	E D Churchill	7 721		8	25	
Massachusetts Memorial Hospitals[1,3,37]	Boston	R Smithwick.	1,894	43	8	27	75
New England Center Hospital[1,3]	Boston	C G Child III	2,072	17	6	18	83
Peter Bent Brigham Hospital[1,3,359]	Boston	F D Moore	3,244	104	6	21	167
Springfield Hospital[1,3]	Springfield Mass	J L Smead	5 590	61	4	11	160
St Vincent Hospital[1,3]	Worcester Mass	E L Richmond	4 622	42	3	[illegible]	175
St Joseph's Mercy Hospital[1,3]	Ann Arbor Mich.	E T Thieme	1,291	4	4	7	200

Numerical and other references will be found on pages 414 to 416

26. SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
University Hospital [1, 3]	Ann Arbor, Mich	F A Coller	2,206	70	14	28	140
Grace Hospital [1, 3]	Detroit	R P Reynolds	8,817	118	4	16	225
Harper Hospital [1, 3, 148]	Detroit	E A Osius	3,750	44	12	21	125
Henry Ford Hospital [1, 3]	Detroit	L S Fallis	9 525	115	20	56	225
Receiving Hospital [1, 3]	Detroit	C G Johnston	5 241	135	6	22	254
Wayne County General Hospital and Infirmary [1, 3]	Eloise, Mich	M M Musselman	3,056	88	3	13	287
Hurley Hospital [1]	Flint, Mich	G J Curry	6 017	36	2	8	825
Butterworth Hospital [1]	Grand Rapids, Mich	M B Tidey	6,955	48	2	7	225
Highland Park General Hospital [1, 3]	Highland Park, Mich	W McClure	1,889	5	2	8	
Minneapolis General Hospital [1, 3, 36]	Minneapolis	A A Zierold	876	72	6	14	18?
University of Minnesota Hospitals [1, 3]	Minneapolis	O H Wangensteen	1 748	90	9	27	162
Mayo Foundation and Clinic [1-3]	Rochester, Minn		6 291	67	27	81	150
Ancker Hospital [1, 3]	St Paul	A P Hauser	1,792	87	2	8	181
Charles T Miller Hospital [1]	St Paul	N L Levin—H B Zimmermann	1,387	12	1	8	185
Kansas City General Hospital No 1 [1, 3]	Kansas City, Mo	R R Coffey	1,144	86	2	8	150
Barnes Hospital [1, 3, 310]	St Louis	C A Moyer	2,812	75	15	27	50
Homer G Phillips Hospital [1, 3]	St Louis	R Elman	2,781	83	12	22	
Jewish Hospital [1, 3, 10]	St Louis	M D Pareira	2 392	40	4	8	100
Missouri Pacific Hospital [3]	St Louis	R A Weir	4,226	18	4	10	
St Louis City Hospital [1, 3]	St Louis	A McAfee—G Starkloff	3,244	89	4	15	137
St Mary's Group of Hospitals [1, 3, 158, 188]	St Louis	C R Hanlon	2,811	52	4	13	65
Creighton Memorial St Joseph's Hospital [3]	Omaha	H H McCarthy	5,873	85	3	12	175
University of Nebraska Hospital	Omaha	H H Davis	580	227	3	9	
Dartmouth Medical Center			3,837	73	5	16	170
Mary Hitchcock Memorial Hospital [1, 3]	Hanover, N H	R E Weismann					
Veterans Admin Hospital [1]	White River Junction, Vt	W B Crandell					
Newark Beth Israel Hospital [1, 3]	Newark, N J	E V Parsonnet	7 851	22	1	4	75
Albany Hospital [1, 3, 410]	Albany, N Y	E H Campbell	3,281	67	5	9	75
Brooklyn Hospital [1-3]	Brooklyn	W H Field	2,895		4	10	10
Coney Island Hospital [1, 3]	Brooklyn	I F Hammett	2 563	38	2	8	
Jewish Hospital [1, 3]	Brooklyn	L Berger	3,252	29	4	9	75
Kings County Hospital University Service [1, 3]	Brooklyn	C Dennis	4,105	57	5	13	98
Long Island College Hospital [1, 3]	Brooklyn	E J Browder	2 804	32	2	6	
Maimonides Hospital [1, 7]	Brooklyn	C B Ripstein	3 120	41	6	14	85
Methodist Hospital [1-3, 152]	Brooklyn	P A Renaud—S G Clark	2,309	24	2	5	75
Wyckoff Heights Hospital [1, 3]	Brooklyn	P Zoller	1 926	13	8	12	100
Buffalo General Hospital [1, 3, 193]	Buffalo	J R Paine	3 275	52	4	18	125
Edward J Meyer Memorial Hospital [1, 3]	Buffalo	J D Stewart	1 691	55	4	13	179
Millard Fillmore Hospital [1, 3]	Buffalo	H N Kenwell	4 417	38	3	10	
Sisters of Charity Hospital [1, 3, 113]	Buffalo	J C Brady	6,700	56	2	7	210
Mary Imogene Bassett Hospital [1, 3, 19]	Cooperstown, N Y	M A McIver	1,251	16	1	4	143
Meadowbrook Hospital [3]	Hempstead, N Y	J N Shell	2 114	76	2	9	225
Queens General Hospital [1, 3]	Jamaica, N Y	C L Davidson	3 328	182	4	10	98
Nassau Hospital [1, 3]	Mineola, N Y	W C Freese	3,888	15	1	4	170
Bellevue Hospital Center							
Division I—Columbia University [1, 3]	New York City						
Division II—Cornell University [1, 3]	New York City	C Holman			2	15	
Division III—N Y University College of Med [1, 3]	New York City	J Mulholland	2,405	42	7	10	98
Division IV—New York University Post Graduate Medical School [1, 3]	New York City	J W Hinton	2,170	38	18	54	98
Beth Israel Hospital [1, 3, 19]	New York City	L Glazburg	2,112	17	2	4	120
Flower and Fifth Avenue Hospitals [1, 3]	New York City	J M Winfield	4,285	48	6	7	
Harlem Hospital [1, 3]	New York City	A del Maynard	1 269	21	4	12	98
Lenox Hill Hospital [1-3]	New York City	F M Donohue—H C Maier	3,304	30	2	8	180
Lincoln Hospital [1, 3]	New York City	F H Amendola	3,203	21	4	10	99
Metropolitan Hospital [1, 3]	New York City	J M Winfield	1 400	30	2	6	98
Montefiore Hospital [1, 3]	New York City	E S Hurwitt	2,280	76	8	10	75
Mount Sinai Hospital [1, 3]	New York City	M Ravitch	3,510	82	12	19	50
New York Hospital [1-3, 190]	New York City	F Glenn	4 652	98	17	23	18
New York Polyclinic Medical School and Hosp [1-3]	New York City	R E Brennan	3,809	83	3	12	100
Presbyterian Hospital [1, 3]	New York City	G H Humphreys	3,780	59	7	28	
Roosevelt Hospital [1, 3]	New York City	H A Patterson—F H Amendola	3 719	54	6	18	116
St Luke's Hospital [1, 3]	New York City	H A Zintel	3,966	46	4	10	75
St Vincent's Hospital [1, 3] [illegible]	New York City	L M Rousselot	6,060	77	6	10	60
Genesee Hospital [1, 3]	Rochester, N Y	S J Stabins	2,156	47	2	7	75
Rochester General Hospital [1, 3]	Rochester, N Y	D C Houghton	3,678	60	4	12	100
Strong Memorial Rochester Municipal Hospitals [1, 3, 200]	Rochester, N Y	W J M Scott	2 672	120	5	17	42
State University of New York Medical Center [3]	Syracuse, N Y	R O Gregg			10	23	101
Grasslands Hospital [1, 3]	Valhalla, N Y	G C Adie	517	34	1	5	150
White Plains Hospital [1, 3]	White Plains, N Y	E G Ramsdell	3,330	32	1	4	125
North Carolina Memorial Hospital [1, 431]	Chapel Hill, N C	N A Womack	583	13	6	16	145
Duke Hospital [1, 3] [illegible]	Durham, N C	D Hart	2 034	3	15	27	67
North Carolina Baptist Hospital [1, 3]	Winston Salem, N C	H H Bradshaw	1 346	14	4	16	125
City Hospital [1, 3]	Akron, Ohio	S A Schlueter	3,009	55	4	10	235
Peoples Hospital [1, 3, 73]	Akron, Ohio	R T Allison	1 649	16	4	13	250
St Thomas Hospital [1, 3]	Akron, Ohio	D E Banks	3 737	23	2	7	250
Aultman Hospital [1, 3]	Canton, Ohio	H J Bowman	4,096	54	7	11	225
Mercy Hospital [1, 3]	Canton, Ohio	S Hill	6,322	20	2	7	900
Cincinnati General Hospital [1, 3, 433, 434]	Cincinnati	W A Altemeier	2 850	117	10	31	
City Hospital [1, 3]	Cleveland	F A Simeone	1,966	74	11	24	140
Cleveland Clinic Hospital [1, 3]	Cleveland	R S Dinsmore	2,336	18	9	22	145
Lutheran Hospital [1, 3]	Cleveland	J H Lazzari	3 878	28	2	6	175
Mount Sinai Hospital [1, 3]	Cleveland	S O Freedlander	2,065	24	5	11	215
St Alexis Hospital [1, 3]	Cleveland	C R Lulenski	5,911	52	3	9	250
St John Hospital [1-3]	Cleveland	F T Gallagher	2,173	17	2	6	170
St Luke's Hospital [1-3]	Cleveland	D M Glover	4 138	40	2	8	190
St Vincent Charity Hospital [1, 3]	Cleveland	E P Neary	5,354	28	4	12	210
University Hospitals [1, 3]	Cleveland	W D Holden	4,928	72	8	24	125
Ohio State University Hospitals							
University Hospital [1, 3, 236, 241]	Columbus, Ohio	R M Zollinger	3,252	70	5	24	150
Lakewood Hospital [1-3]	Lakewood, Ohio	N W Thiessen	1 982	8	4	9	200
St Elizabeth's Hospital [1-3]	Youngstown, Ohio	J A Renner	1,722	14	3	7	300
Youngstown Hospital [1, 3]	Youngstown, Ohio	A E Brant	8,898	55	2	8	125
University Hospitals [1-3]	Oklahoma City	F M Lingenfelter	1,022	23	3	8	60
St Vincent's Hospital [1, 250]	Portland, Ore	W C Foster	4,693	30	3	12	145
University of Oregon Medical School Hospitals and Clinics [1, 3, 253]	Portland, Ore	W K Livingston	1,540	57	2	8	65
Abington Memorial Hospital [1, 3]	Abington, Pa	C M Smyth	2 743	54	1	4	100
George F Geisinger Memorial Hospital [1, 3]	Danville, Pa	H L Foss	2,359	18		4	125
Harrisburg Hospital [1, 3]	Harrisburg, Pa	P Kunkel	5,091	40	1	4	250

Numerical and other references will be found on pages 414 to 416

26 SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Germantown Dispensary and Hospital [1, 3, 301]	Philadelphia	S D Weeder	3 740	55	1	4	150
Graduate Hospital of the University of Pennsylvania [1, 3, 2, 4]	Philadelphia	W Bates	1,593	54	2	6	
Hahnemann Medical College and Hospital [1, 3]	Philadelphia	W L Martin	4 175	36	3	12	
Hospital of the University of Pennsylvania [1, 3]	Philadelphia	I S Ravdin	4,957	65	10	29	125
Jefferson Medical College Hospital [1, 3]	Philadelphia	T A Shallow—J H Gibbon Jr	4 087	81	6	11	
Lankenau Hospital [1, 3]	Philadelphia	J M Deaver—G C Engel	2 662	22	2	6	100
Pennsylvania Hospital [1-3]	Philadelphia	A A Walkling	1 415	37	7	7	20
Temple University Hospital [1, 3]	Philadelphia	W E Burnett	2 624	41	3	12	
Allegheny General Hospital [1, 3]	Pittsburgh	J A. Heberling	3,298	1	4	4	
Mercy Hospital [1, 3]	Pittsburgh	F H Bragdon	3,841	9	4	8	175
Pittsburgh Medical Center [1, 3]	Pittsburgh	S P Harbison	1 726	14	4	11	125
Western Pennsylvania Hospital [1, 3]	Pittsburgh	G N Foster	3 072	69	2	8	225
Robert Packer Hospital [1, 3]	Sayre Pa	D Guthrie	3 469	42	2	6	150
York Hospital [3]	York Pa	J F Bacon	5 037	38	1	4	250
Rhode Island Hospital [1, 3]	Providence R I	J M Beardsley	4,345	75	10	16	60
Roper Hospital [1, 3]	Charleston S C	F E Kredel	3 696	32	3	7	83
Baptist Memorial Hospital [1, 3, 204]	Memphis Tenn	R M Pool	6 033	32	2	7	100
John Gaston Hospitals [1, 3]	Memphis Tenn	H Wilson	2,520	34	2	12	85
George W Hubbard Hospital of Meharry Medical College [1, 3, 38]	Nashville Tenn	M Walker	1 108	20	2	8	125
Nashville General Hospital [1]	Nashville Tenn	R A Daniel	1,813	22	2	6	
St Thomas Hospital [1, 3]	Nashville Tenn	J C Gardner	5 653	30	2	8	200
Vanderbilt University Hospital [1, 3]	Nashville Tenn	H W Scott Jr	2,518	52	6	17	50
Baylor University Hospital [1, 3]	Dallas Texas	J W Duckett	3 067	18	3	9	105
Parkland Hospital [1, 3]	Dallas Texas	B Wilson	1 412	31	10	19	125
University of Texas Medical Branch Hospitals [1, 3]	Galveston Texas	R M Moore	1,352	19	10	23	150
Jefferson Davis Hospital [1, 278]	Houston Texas	M E DeBakey	1,691	61	4	13	50
Salt Lake County General Hospital [1, 3, 418]	Salt Lake City	P B Price	852	45	3	11	125
University of Virginia Hospital [1, 3]	Charlottesville Va	C B Morton	2 070	49	7	15	50
Chesapeake and Ohio Hospital [99]	Clifton Forge Va	J M. Emmett	1 755	19	2	4	150
Norfolk General Hospital [1, 3]	Norfolk Va	C E Davis	2,426	21	4	8	150
Medical College of Virginia—Hospital Division [1, 3]	Richmond Va	I A Bigger	5,230	64	9	24	50
King County Hospital—Unit No 1 (Harborview) [1, 2, 293]	Seattle	H N Harkins	1,899	60	4	12	110
Virginia Mason Hospital [1, 3, 293]	Seattle	J W Baker	4,137	62	3	11	100
University Hospitals State of Wisconsin General Hospital [1]	Madison Wis	E R Schmidt	2 634	77	4	16	
Milwaukee County Hospital [1, 3]	Milwaukee	C F Conroy	5,903	75	4	13	205
Milwaukee Hospital [1, 3]	Milwaukee	C S Rife	4,302	24	2	4	150

The following services have been approved for three years of training by the Council the American Board of Surgery and the American College of Surgeons through the Conference Committee on Graduate Training in Surgery (See also additional lists of approved services pp 402-405 and 408-410)
Hospitals 233 Assistant Residencies and Residencies 1,340

FEDERAL

UNITED STATES ARMY

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Tripler Army Hospital [1, 66]	Honolulu T H	G L Beatty	2,079	27	3	10	

UNITED STATES NAVY

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
U S Naval Hospital [1, 3]	Portsmouth Va	C F Storey	5 138	25	2	6	

UNITED STATES PUBLIC HEALTH SERVICE

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
U S Public Health Service Hospital [1, 3]	New Orleans	J L Elliott	1,896	21	1	3	
U S Public Health Service Hospital [1]	Baltimore	H D Fishburn	4 110	75	2	7	
U S Public Health Service Hospital	Boston	O C Williams	1 768	10	1	3	
U S Public Health Service Hospital [1, 3]	Staten Island N Y	J D Lane Jr	5,904	50	3	10	
U S Public Health Service Hospital	Seattle	P E Walker	2 488	22	1	5	

VETERANS ADMINISTRATION

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Veterans Admin Hospital [1-3, 315]	Tuskegee Ala	A G Yancey	1,591	23	3	8	
Veterans Admin Hospital [1, 3]	Coral Gables Fla	M H Todd	2,680	56	5	13	
Veterans Admin Hospital [1, 74]	Augusta Ga	R A Krause	1 243	9	2	6	
Veterans Admin Research Hospital	Chicago	F W Preston			2	4	
Veterans Admin West Side Hospital	*Chicago*						
Veterans Admin Hospital [1, 3, 30]	Wichita Kan	A H Hinshaw	1,501	23	3	4	
Veterans Admin Hospital [1, 3, 165]	Lincoln Neb	B R Walske	1,399	21	2	8	
Veterans Admin Hospital [1]	Albuquerque N Mex.	W A Childs	2,025	24	3	10	
Veterans Admin Hospital [1, 3, 16]	Albany N Y	J A Nelson	1,940	49	4	10	
Veterans Admin Hospital [1, 3, 32]	Providence R I	P Cooper	2,744	29	6	10	
Veterans Admin Hospital [3]	Columbia S C	K. M. Lippert	757	10	1	3	
Veterans Admin Hospital [1, 3]	Martinsburg W Va	R K. Hollingsworth	1,259	28	3	8	
Veterans Admin Hospital [1, 3, 113]	San Juan P R.	L A Passalacqua	1 644	7	2	6	

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Carraway Methodist Hospital [1, 3]	Birmingham Ala	B M Carraway	728	10	2	5	250
City Hospital	Mobile Ala	E B Frazer	1 609	26	3	3	200
Maricopa County General Hospital [1, 3]	Phoenix Ariz.	T Bate	703	11	1	5	300
Kern General Hospital [1, 3]	Bakersfield Calif	R F Foote	1 495	36	3	10	325
Herrick Memorial Hospital [1, 3]	Berkeley Calif	S H Babington	3,288	25	1	3	
San Joaquin General Hospital [1]	French Camp Calif	W Brock	2 135	30	2	7	235
General Hospital of Fresno County [1, 3]	Fresno Calif	F I Gilliland	3,359	55	2	6	231
California Hospital [1, 3]	Los Angeles	W H Olds	2,743	[illegible]	7	19	150
Cedars of Lebanon Hospital [1, 3]	Los Angeles	S Herzikoff—D Rosenblum	2,024	9	1	4	225
Hospital of the Good Samaritan [1, 3]	Los Angeles	G K Smith	2,529	7	2	[illegible]	200
Presbyterian Hospital Olmsted Memorial [1, 3]	Los Angeles	W H Snyder	4,940	20	1	3	125
Queen of Angels Hospital [1, 3]	Los Angeles	D Ross	3 446	65	1	4	
St Vincent's Hospital [3]	Los Angeles	W P Kroger	5,9[illegible]5	13	1	3	
White Memorial Hospital [1, 2, 3, 5]	Los Angeles	C E Stafford	1,352	18	2	4	
Mercy Hospital [1, 3]	San Diego Calif	J J O Hara	7,253	25	2	5	175
San Diego County General Hospital [1, 3]	San Diego Calif	A H Lorch	751	[illegible]	4	[illegible]	
Franklin Hospital [1, 3, 43]	San Francisco	C G Lyon	1,517	11	6	[illegible]	110
St Joseph's Hospital [1, 3]	San Francisco	G F Cushman	2,543	4	1	3	150
St Mary's Hospital [1, 3]	San Francisco	E Butler	4,233	15	3	6	150
Southern Pacific General Hospital [1, 3]	San Francisco	V M. Strange	2 [illegible]	[illegible]	2	8	150
Presbyterian Hospital [1, 3]	Denver	K C Sawyer	1,916	18	1	2	150
St Anthony Hospital [1, 3]	Denver	R. G Howlett	1,2[illegible]	[illegible]	1	3	175
St Joseph's Hospital [1]	Denver	F R Harper	2,102	19	1	3	150

Numerical and other references will be found on pages 414 to 416

25 SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
St Luke's Hospital [1,3]	Denver	G Buck	1,796	16	2	6	175
Bridgeport Hospital [1,3]	Bridgeport Conn	I L Harshbarger	4,555	26	1	4	125
St Vincent's Hospital [1,3,459]	Bridgeport, Conn	W Curley Jr	2 616	29	2	8	300
St Francis Hospital [1,3]	Hartford, Conn	L St John	4,301	37	1	3	100
Hospital of St Raphael [3]	New Haven, Conn	O Pelliccia	2,684	31	4	11	125
Waterbury Hospital [1]	Waterbury Conn	H E Allen	4 284	49	1	4	225
Duval Medical Center [1,3]	Jacksonville, Fla	K A Morris	2,164	46	2	5	150
St Vincent's Hospital [1,3,41]	Jacksonville, Fla	F Waas	8 381	25	5	8	135
Mount Sinai Hospital [1,3]	Miami Beach Fla	R M Fleming	8,262		1	3	250
Crawford W Long Memorial Hospital [1,3]	Atlanta, Ga	C L Holloway	5 115	13	6	9	
Georgia Baptist Hospital [1,3]	Atlanta, Ga	W S Dorough	2,597	8	4	9	200
St Joseph's Infirmary [1,3]	Atlanta, Ga	D Shepard	8,264	24	2	4	180
American Hospital [1,3]	Chicago	P Thorek—M Thorek	2 453	40	5	8	60
Augustana Hospital [1,3]	Chicago	N M Percy	8 710	26	4	9	150
Grant Hospital [1,3]	Chicago	C K Solander	1,781	12	2	2	150
Illinois Masonic Hospital [1,3]	Chicago	P Shambaugh	2,306	34	8	6	115
Lutheran Deaconess Home and Hospital [3]	Chicago	J D Koucky	4,240	21	2	4	200
Provident Hospital [1,3]	Chicago	E F Hasbrouck	1,397	17	1	8	200
St Joseph Hospital [1,3]	Chicago	F B McCarty	1,511	24	2	3	200
St Mary of Nazareth Hospital	Chicago	F H Warszewski	4 046	9	2	6	150
Evanston Hospital [1]	Evanston, Ill	J M Dorsey	1 122	9	1	3	
St Francis Hospital [1,3]	Evanston, Ill	D P Slaughter	3,455	30	3	7	175
West Suburban Hospital	Oak Park, Ill	R F Sharer	3,314	68	2	4	225
Clinic Hospital [102]	Bluffton Ind	H D Caylor	799	17	1	3	300
Methodist Hospital [1,3]	Indianapolis	P K Cullen	3,926	29	2	6	273
St Vincent's Hospital [1]	Indianapolis	W D Gatch	2 071	47	1	8	275
St Elizabeth Hospital [1,3]	Lafayette, Ind	E T Stahl	4 923	82	2	6	175
Halstead Hospital [1,3]	Halstead, Kan	V E Chesky	1,356	10	3	8	
St Margaret Hospital	Kansas City Kan	M V Laing	2,010	29	1	3	200
Wesley Hospital [1,3]	Wichita, Kan	A E Hiebert	1,510	4	1	3	150
St Joseph Hospital [3]	Lexington Ky	F W Rankin	2 062	23	3	8	210
Ochsner Foundation Hospital [1]	New Orleans	A Ochsner	1,202	14	7	21	200
Southern Baptist Hospital [1]	New Orleans	C R Walters	9 183	41	1	3	225
Touro Infirmary [1,116]	New Orleans	I W Kaplan	4,285	41	2	6	100
Lutheran Hospital [1,3]	Baltimore	W E Gilmore	2,328		3	6	220
Maryland General Hospital [1,3]	Baltimore	W M Firor	3 634	25	3	6	210
Provident Hospital and Free Dispensary [1,3]	Baltimore	S McLanahan	1 087	14		8	
St Agnes Hospital [1,3,122]	Baltimore	G A Stewart	3,330	12	2	5	
St Joseph's Hospital [1,3]	Baltimore	W R Geraghty	3,814	29	2	6	225
South Baltimore General Hospital [1,3]	Baltimore	G H Yeager	2 172	11	2	4	170
Beverly Hospital [1,110]	Beverly, Mass	R L Alt	2 282	29	2	5	100
Children's Medical Center [1-3]	Boston	R E Gross	1 698		6	11	42
St Elizabeth Hospital [1,3]	Boston	J W Spellman	4,041	25	3	7	125
Cambridge City Hospital [1,3]	Cambridge Mass	J B Vernaglia	1,631	27	1	8	160
Mount Auburn Hospital	Cambridge Mass	S J G Nowak	3 201	37	1	8	135
Malden Hospital [1,3]	Malden, Mass	W E Garrey	3,786	21	8	6	125
Newton Wellesley Hospital [1,3]	Newton Lower Falls, Mass	R I Smith	2 811	34	1	3	170
Quincy City Hospital [1-3,342]	Quincy, Mass	J M McGowan	1,730	31	2	2	168
Memorial Hospital [1-3]	Worcester, Mass	B C Wheeler	6,027	34	2	6	200
Worcester City Hospital [3]	Worcester Mass	E Croce	2 785	42	2	4	215
Leila Y Post Montgomery Hospital [1]	Battle Creek, Mich	R L Mustard	938	8	2	2	215
Alexander Blain Hospital [1,3]	Detroit	A Blain III	810	4	2	5	200
Detroit Memorial Hospital [1,3]	Detroit	J M Pendy	5,639	88	2	6	250
Evangelical Deaconess Hospital [1-3]	Detroit	E C Baumgarten	1 519	7	1	4	205
Jennings Memorial Hospital [1,3]	Detroit	J B Hartzell	1 645	6	1	8	350
Mount Carmel Mercy Hospital [1-3]	Detroit	E L Stefani			4	13	225
Providence Hospital [1-3]	Detroit	D H O Donnell	7 674	53	1	3	250
St Joseph Mercy Hospital [1-3]	Detroit	D Liethauser	4 721	23	1	3	240
McLaren General Hospital [1]	Flint, Mich	H B Elliott	8,712	11	1	8	325
Blodgett Memorial Hospital [1-3,146]	Grand Rapids Mich	R H Meade	1 715	22	1	3	200
St Mary's Hospital [1-3,302]	Grand Rapids, Mich	S L Moleski	2 770	36	1	3	200
Bronson Methodist Hospital [1]	Kalamazoo, Mich	A B Hodgman	2 669	41	1	4	200
Pontiac General Hospital [1,3,155]	Pontiac, Mich	R W Bullard Jr	5 032	34	1	3	300
Saginaw General Hospital [1-3]	Saginaw, Mich	J E Manning	3,028		1	3	325
Mount Sinai Hospital [1-3,150]	Minneapolis	D Gaviser	1,403	15	1	3	180
Northwestern Hospital [1-3]	Minneapolis	D O MacKinnon	2 886	8	1	3	200
St Barnabas Hospital [1-3]	Minneapolis	L B Clay—L F Sherman	1 076	6	1	2	175
Mayo Foundation [1-3]	Rochester Minn		6 291	68	28	84	150
St Joseph's Hospital [1-3]	St Paul	F M Owens, Jr	1,605	14	1	4	163
Lutheran Hospital	Vicksburg Miss	W H Parsons	1,592	8	1	5	50
Mercy Hospital Street Memorial [306]	Vicksburg, Miss	A Street	1 826	10	1	3	225
St Louis County Hospital	Clayton, Mo	C Doyle	448	15	3	7	215
Kansas City General Hospital No 2	Kansas City, Mo	M S Harless	532	28	2	6	
Research Hospital [1-3]	Kansas City, Mo	C J Hunt	8 475	40	2	6	175
St Joseph Hospital [3]	Kansas City, Mo	E N Gentry	6 150		1	2	200
St Luke's Hospital [1,3-403]	Kansas City Mo	L P Engel	1,465	21	2	4	175
De Paul Hospital [1,3]	St Louis	J W Thompson	4,131	18	2	6	200
Missouri Baptist Hospital [1-3]	St Louis	E F Vitt	2,225	83	2	5	175
St Luke's Hospital [1,3]	St Louis	C E Lischer	2 826	88	2	4	200
Atlantic City Hospital [1-3]	Atlantic City, N J	D B Allman	2,164	12	1	3	250
Cooper Hospital [1,3]	Camden, N J	E R Ristine	2,636	35	1	4	200
West Jersey Hospital [1,3]	Camden, N J	H W Jack	1 995	10		3	200
Medical Center-Jersey City Hospital [1,3]	Jersey City, N J	E J Halligan	5 389	78	8	25	60
Burlington County Hospital [1,3]	Mt Holly, N J	T J Summey	1,375	28	1	3	
Harrison S Martland Medical Center [1-3]	Newark N J	C Rich	1,270	44	3	9	150
Hospital of St Barnabas and for Women and Children [1-3]	Newark, N J	M S O Grady	251		1	4	150
Orange Memorial Hospital [1,6]	Orange, N J	C W Scranton	2,891	34	1	8	125
St Francis Hospital [1,3]	Trenton, N J	L S Sica	5 751	62	2	4	
Binghamton City Hospital [1-3]	Binghamton N Y	H J King	5,241	37	2	4	150
Beth El Hospital [1,3]	Brooklyn	H Neuhof	8 226	9	2	6	150
Cumberland Hospital [1,3,182]	Brooklyn	J J Gainey	2,396	18	5	8	
Greenpoint Hospital [1,3]	Brooklyn	H Feldman	2 290	28	2	6	98
Kings County Hospital, County Division [1-3]	Brooklyn	J F Raycroft	4 549	61	5	12	93
Norwegian Lutheran Deaconess Home and Hosp [1-3]	Brooklyn	R P San Filippo	2 134	91	1	3	100
St Catherine's Hospital [1,3]	Brooklyn	J McCabe	8,074	27	1	3	
St John's Episcopal Hospital [1-3]	Brooklyn	M N Foote	2,369	10	1	3	[illegible]
St Mary's Hospital [1,3]	Brooklyn	D F Maurillo	1,033	13	1	3	[illegible]
Clifton Springs Sanitarium & Clinic [1,3]	Clifton Springs, N Y	R M Price	1,746	10	1	4	[illegible]

Numerical and other references will be found on pages 414 to 416

26 SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
Flushing Hospital & Dispensary[1,3]	Flushing N Y	O N Baker	4,839	26	1	4	200
Jamaica Hospital[1-3]	Jamaica N Y	E J Patterson	3,823	72	1	3	200
Mary Immaculate Hospital[1,3]	Jamaica N Y	H W Draffen	4 465	19	3	5	120
Charles S Wilson Memorial Hospital[1,3]	Johnson City N Y	O B S eenburg	3,355	31	3	9	200
Mount Vernon Hospital[3,66]	Mt Vernon N Y	N W Cornell	3 141	15	1	3	50
New Rochelle Hospital[1,3]	New Rochelle N Y	G C Adle	4,596	30	1	4	175
Beth David Hospital[1,3]	New York City	L Breidenbach	2,346	21	1	3	
Bronx Hospital[1-3]	New York City	R Friedlander	2,830	15	4	10	60
Fordham Hospital[1,3]	New York City	A B Sullivan—H H Janes	2,561	44	2	6	93
French Hospital[1,3]	New York City	H B Keyes	2,360	22	1	3	50
Knickerbocker Hospital[1,3,19]	New York City	R H Patterson	2 615	19	5	9	110
Memorial Center for Cancer and Allied Diseases[1,3]	New York City	H T Randall	8,254	172	26	56	93
Morrisania City Hospital[1,3]	New York City	R J Azzari	1 092	10	2	6	
New York City Hospital[1,3]	New York City	J H Kidder	2 149	18	3	5	93
St. Clare s Hospital[1,3]	New York City	J L Madden	3 467	34	2	8	125
St Francis Hospital[1,3,19]	New York City	J P Alrich	2 084	23	1	3	125
Highland Hospital[1,3]	Rochester N Y	H R Ziegler	4 141	34	3	6	100
St Mary s Hospital[1,3]	Rochester N Y	N J Pfaff	6 794	40	3	7	
Ellis Hospital[1,3]	Schenectady N Y	S F MacMillian	6,155	57	2	4	150
Charlotte Memorial Hospital[1,3]	Charlotte N C	T D Sparrow	1 749	18	1	4	200
Lincoln Hospital[1,3,303]	Durham N C	H M Schiebel	887	6	1	3	175
Watts Hospital[1,3]	Durham N C	J S Wilson	3,538	9	2	6	100
Rex Hospital[1,3]	Raleigh N C	A T Hamilton	2,568	12	1	3	250
City Memorial Hospital[1,3]	Winston-Salem N C	J F Marshall	3,316	20	1	3	
Christ Hospital[1]	Cincinnati	E A Kindel	2,044	27	2	5	200
Good Samaritan Hospital[1,3]	Cincinnati	C S Roof	2,423	14	2	6	175
Jewish Hospital[1,3,36]	Cincinnati	J D Heiman	5,963	42	4	11	145
St Mary s Hospital[1,3]	Cincinnati	R D Mansfield	1,528	17	1	3	250
Mount Carmel Hospital[1]	Columbus Ohio	W H Teachnor	5 412	53	1	3	250
White Cross Hospital[1]	Columbus Ohio	E M Fusco	3,087	29	2	4	325
Miami Valley Hospital[1,3]	Dayton Ohio	R D Snyder	3 174	43	2	6	165
Huron Road Hospital[1-3]	East Cleveland	L A Steinbilber	5 022	40	2	7	210
St Rita s Hospital[1,3]	Lima Ohio	A M Barone	4,261	17	1	3	225
Maumee Valley Hospital	Toledo Ohio	W W Beck	639	24	2	6	
Mercy Hospital[1,3]	Toledo Ohio	E L Gaspari	4,374	47	1	3	250
St Vincent s Hospital[1-3]	Toledo Ohio	B G Shaffer	2 774	35	2	5	225
Toledo Hospital[1,3]	Toledo Ohio	W L Bryant	3,840	24	1	3	200
St Anthony Hospital	Oklahoma City	L J Starry	5 027	42	1	3	150
Hillcrest Medical Center[1]	Tulsa Okla	A. R Wiley	5 126	19	2	5	
St John s Hospital[1,3]	Tulsa Okla	H White	4 781	29	2	4	
Emanuel Hospital[1,3]	Portland Ore	F B Packard	2,800	25	1	3	175
Allentown Hospital[1,3]	Allentown Pa	R L Schaeffer	2,348	38	1	3	225
Sacred Heart Hospital[1,3]	Allentown Pa	C A Holland	5,624	51	1	3	225
St Luke s Hospital[1,3]	Bethlehem Pa	D P Walker	4,211	52		4	275
Bryn Mawr Hospital[1,3]	Bryn Mawr Pa	F Robbins	3,538	25	2	4	100
Hamot Hospital[1,3]	Erie Pa	B Goldman	4 766	44	1	3	200
St. Vincent s Hospital[1,3]	Erie Pa	J W Schilling	3 438	31	1	3	100
Harrisburg Polyclinic Hospital[1]	Harrisburg Pa	W K. McBride	4 742	89	1	4	250
St Joseph s Hospital[1]	Lancaster Pa	J L Atlee Jr	3,912	17	1	3	200
Albert Einstein Medical Center							
Northern Division[1,3]	Philadelphia	A. Behrend	3,895	52	2	6	200
Southern Division[1,3]	Philadelphia	B Lipshutz—L Kaplan	1,618	20	3	3	150
Episcopal Hospital[1,3]	Philadelphia	J W Klopp—G P Rosemond	2,074	32	1	3	100
Hospital of the Woman s Medical College of Pa[1,3]	Philadelphia	L K Ferguson	1 404	7	1	4	60
Methodist Episcopal Hospital[1,3]	Philadelphia	G Willauer	1,366	24	1	4	200
Philadelphia General Hospital[1,3]	Philadelphia	W H Erb	2,834	152	3	7	113
Presbyterian Hospital[1,3]	Philadelphia	O C King	4,351	25	2	6	100
Woman s Hospital[1,3]	Philadelphia	C M. Smyth Jr	796	2	1	2	175
Montefiore Hospital[1,3]	Pittsburgh	Y D Koskoff	3 725	32	1	3	100
Pittsburgh Hospital[1,3]	Pittsburgh	J W Stinson	2,270	15	1	3	200
St Francis Hospital[1,3]	Pittsburgh	E W Meredith	3,974	23	1	3	150
Reading Hospital[1,3]	Reading Pa	O B Rentschler	1 698	14	1	3	225
St Joseph s Hospital[1,3]	Reading Pa	R R Impink	1 061	10	1	4	250
Williamsport Hospital[1]	Williamsport Pa	F E Sanford	2 633	20		3	
Baroness Erlanger Hospital[1,3]	Chattanooga Tenn	R Van Fletcher	3,979	41	8	14	
Knoxville General Hospital	Knoxville Tenn	C R Zirkle	2,824	30	2	4	150
Methodist Hospital	Memphis Tenn	M Aste	6,396	26	3	3	100
St Joseph Hospital[1,3,66]	Memphis Tenn	A J Grobmyer	2,201	12	1	4	
Mid State Baptist Hospital[1,3]	Nashville Tenn	J A Kirtley	4,289	23	3	7	175
Methodist Hospital[1,3]	Dallas Texas	B E Park	2,561	8	3	7	125
Hermann Hospital[1,3]	Houston Texas	G W Waldron	5 472	34	2	4	100
St. Joseph s Hospital[1,3]	Houston Texas	J P Barnes	1,910	16	2	4	225
Robert B Green Memorial Hospital[1,3,76]	San Antonio Texas	T A Pressly	791	28	1	3	125
Dr W H Groves Latter Day Saints Hospital[1,3]	Salt Lake City	V L. Rees	4,243	39	2	6	
Bishop DeGoesbriand Hospital	Burlington Vt	A A. Gladstone	1 030	6	1	2	100
Mary Fletcher Hospital[1,3]	Burlington Vt	A. G Mackay	1 402	23	2	8	100
Alexandria Hospital[1,3]	Alexandria Va	C L Fifer	1,837	10	1	3	225
Johnston Willis Hospital[1,3,369]	Richmond Va	F S Johns	1,395	8	1	3	250
Jefferson Hospital[1,3]	Roanoke Va	A P Jones	1 036	16	2	5	
Swedish Hospital[1,3,314]	Seattle	J Duncan	2 403	80	2	6	
Beckley Hospital[3]	Beckley W Va		2 457	16	2	4	250
Charleston General Hospital[1,3]	Charleston W Va	H A Bailey	2,294	7	2	8	175
Kanawha Valley Hospital[3]	Charleston W Va	J C Condry	1,936	3	1	3	200
Memorial Hospital[1,3]	Charleston W Va	B Bradford Jr	2,832	25	4	7	
St Mary s Hospital[1,3]	Huntington Va	W C Kappes	2,289	13	1	4	150
Laird Memorial Hospital[1,3]	Montgomery W Va	W R Laird	2,020	4		1	200
Myers Clinic Hospital[1]	Philippi W Va	H. C Myers	1,230	14	1	4	200
Ohio Valley General Hospital[1,3]	Wheeling W Va	J O Rankin	3,591	23	1	3	200
Madison General Hospital[1,3]	Madison Wis	J S Supernaw	2,847	19		4	150
Columbia Hospital[1,3,231]	Milwaukee	F Raine	1,159	3	1	3	195
St Joseph s Hospital[1,3]	Milwaukee	C Conroy	5,911	85	1	4	200
Gorgas Hospital[3]	Ancon C Z	W W Nichol	1,890	37	2	6	
Queen s Hospital[1,3]	Honolulu T H.	J E Strode	2,239	24	3	7	125
Bayamon District Hospital[1,3]	Bayamon P R	J Bertran	1 600	61	1	3	225
San Juan City Hospital[1,3]	San Juan P R.	J N Benitez	2,347	25	2	6	150

Numerical and other references will be found on pages 414 to 416.

26 SURGERY—Continued

The following hospitals approved by the Council, the American Board of Surgery and the American College of Surgeons through the Conference Committee on Graduate Training in Surgery, offer training in surgery of less than three years' duration, which is integrated with or contributory to a fully approved program (See also additional lists of approved services, pp 402-407 and 409-410)

Hospitals, 48, Assistant Residencies and Residencies, 143

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
FEDERAL							
UNITED STATES NAVY							
U S Naval Hospital [1 3]	Great Lakes, Ill	L L Bean	2,314	18	3	8	
VETERANS ADMINISTRATION							
Veterans Admin Hospital [1 3]	Durham, N C	J P Collins	1,191	9	3	6	
NONFEDERAL							
Glendale Sanitarium and Hospital [1 33]	Glendale, Calif	E Morel	3,228	17	1	3	164
Peralta Hospital [1]	Oakland, Calif	J L Lohse	6 816	8	2	2	195
Samuel Merritt Hospital [1 324]	Oakland Calif	P N Baxter	2,024	16		2	170
French Hospital [1 3 330]	San Francisco	W L Rogers	965	7	2	3	175
Santa Barbara General Hospital [1-3]	Santa Barbara Calif	A D Bissell	308	12			140
Children's Hospital [1 3]	Denver	G B Packard	4,191	87		2	
Colorado State Hospital [1 3]	Pueblo, Colo	T E Wade	800	25	1	4	
Children's Memorial Hospital [1 3]	Chicago	W J Potts	2,148	18		2	75
Henrotin Hospital [1 3]	Chicago	C B Puestow	1,309	10	1	1	200
St Francis Hospital [1 3]	Peoria, Ill	C D Branch	4,264	35	2	3	225
Broadlawns Polk County Hospital [1]	Des Moines Iowa	R M Stickler	787	183		1	175
Norton Memorial Infirmary [1-3]	Louisville, Ky	L H Segerberg	1,631	7	2	8	250
Lafayette Charity Hospital [1 116]	Lafayette, La	J D Rives	2,600	19			
Lawrence F Quigley Memorial Hospital [1-3]	Chelsea, Mass	H H Howard	1,873	14		4	250
Truesdale Hospital [1 3]	Fall River, Mass	W G Atwood	1,525	20	5	5	150
Lynn Hospital [1 3]	Lynn Mass	C F Twomey	1 659	16	1	2	150
Salem Hospital [3]	Salem, Mass	W G Phippen	2,838	29	1	1	125
Pondville Hospital	Walpole Mass	E M Daland	1,328	92		7	490
Westfield State Sanatorium [1 3]	Westfield Mass	F S Hopkins					
Ellis Fischel State Cancer Hospital [1-3]	Columbia Mo	H Schwarz, II	811			6	100
St Louis Children's Hospital [1 3]	St Louis						
John E Jennings Hospital [1 3]	Brooklyn	A Vosseler	308	16			
Children's Hospital [1 3]	Buffalo	L J Leahy	1,920	28			75
Emergency Hospital	Buffalo		3,593	30			
Francis Delafield Hospital [1-3-208]	New York City	G H Humphreys, II	906	117	6	13	98
Goldwater Memorial Hospital [1 3]	New York City	B Shafiroff	505	16	2	8	99
Gouverneur Hospital [1 3]	New York City	F J McGowan	1 003	26		9	08
United Hospital [1 3]	Port Chester, N Y	G O Tremble	2,075	39	1	8	200
Children's Hospital [1-3-224]	Akron Ohio	R M Bartlett	1,343	16	2	6	250
Children's Hospital [1]	Cincinnati	W A Altemeier	1 624	83			
Children's Hospital [1 3]	Columbus, Ohio	H W Clatworthy	1,209			1	
Ohio State University Hospitals St Francis Hospital	Columbus, Ohio	R Zollinger	1,941	41			
Good Samaritan Hospital	Dayton, Ohio	I Helfert	5 008	15	2	2	250
Easton Hospital [1-3]	Easton, Pa	T C Zulick Jr	2,835	18		2	250
Children's Hospital [1 3]	Philadelphia	C E Koop	1,566	26	2	3	65
Children's Hospital [1 3]	Pittsburgh	G V Foster	1 448	7		2	58
Sacred Heart Hospital [1]	Yankton S D	C B McVay	1,398	18	1	1	
Gaston Hospital [3]	Dallas, Texas	J V Goode				8	
Methodist Hospital [1-3 275 276]	Houston, Texas	L L D Tuttle	2,359	12	3	4	100
University of Texas M D Anderson Hospital for Cancer Research [1-3]	Houston, Texas	E C White		16		10	
Holy Cross Hospital [1-3]	Salt Lake City	P M Howard	8,800	36	2	5	175
St Mark's Hospital [1-3]	Salt Lake City	G L Wright	4,877	82	2	2	175
Lewis Gale Hospital [3]	Roanoke, Va	W L Sibley	2,887	27	2	3	300
Children's Orthopedic Hospital [1-3 375]	Seattle	H E Coe	1,374	31		2	180
Chesapeake and Ohio Hospital [1-3 379]	Huntington, W Va	J R Parsons	2 717	6	1	4	150
Milwaukee Children's Hospital [1]	Milwaukee	T L Tolan	1,952	23			

The following services are approved by the Council as offering satisfactory training of one or two years' duration in preparation for residency training in the surgical specialties only Applicants intending to qualify for examination by the American Board of Surgery should refer to the lists of approved services on pp 402-408) (Surgical Residencies, J A M A, 142 1216, April 15, 1950)

Hospitals, 124, Assistant Residencies and Residencies, 285

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered	Total Residencies Offered	Beginning Stipend (Month)
FEDERAL							
UNITED STATES ARMY							
Army and Navy General Hospital [1-66]	Hot Springs, Ark	P A Bergman	211		1	1	
U S Army Hospital [66]	Ft Benning, Ga						
U S Army Hospital [1-3-66]	Fort Campbell, Ky	H F Bertram	7,673	29	4	4	
U S Army Hospital [1-66]	Fort Knox, Ky	L R Steele	1,615	11	1	1	
Valley Forge Army Hospital [1 66]	Phoenixville Pa	H A Conrad	2,898	51	4	4	
William Beaumont Army Hospital [66]	El Paso, Texas	G F Peer	4 923	22	4	2	
U S Army Hospital [1-66]	Fort Belvoir Va	R M Hardaway	8 956	10	2	2	
Madigan Army Hospital [1-3-66]	Tacoma, Wash	J E Graham	1,666	1			
UNITED STATES AIR FORCE							
U S Air Force Hospital (Scott Air Force Base)	Belleville, Ill	C H Smith	2,643	4	2	2	
U S Air Force Hospital [1 3]	Rantoul, Ill	O K Park	899	4	1	1	
U S Air Force Hospital [1-3]	San Antonio, Texas	D Gold	1,676	10	2	2	
U S Air Force Hospital	Wichita Falls, Texas	R H Rowland	1,331	3	3	3	
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE							
St Elizabeth's Hospital	Washington, D C	B Blades	903	70		2	
NONFEDERAL							
St Joseph's Hospital [1-3 2]	Phoenix, Ariz	W H Cleveland	1,851	9	1	1	225
St Mary's Hospital	Tucson, Ariz						
Tucson Medical Center [1 3]	Tucson, Ariz	W D Carrell	1 099	10	2	2	200
Arkansas Baptist Hospital [1]	Little Rock, Ark	T J Raney	1,863	8	1	1	225
General Hospital of Riverside County [1]	Arlington, Calif	S E Farley	1,441	16	1	1	375

Numerical and other references will be found on pages 414 to 416.

26 SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
Seaside Memorial Hospital [1,3]	Long Beach Calif	W G Rhorer	2,132	7	4	4	150
Sante Fe Coast Lines Hospital	Los Angeles	L Chaffin	1,021	16	3	6	250
Collis P and Howard Huntington Memorial Hospital [1,3,25,3]	Pasadena, Calif	L G Craig	3,456	33	1	3	240
San Bernardino County Charity Hospital	San Bernardino Calif	C P Sprague	611	19	4	5	210
Children's Hospital [1,3]	San Francisco	R Fleming	567	7	1	1	125
Mary's Help Hospital [1,3]	San Francisco	E Carlson	1,411	7	1	2	250
St Luke's Hospital [1,3]	San Francisco	C D Delprat	4,525	23	3	5	200
Community Hospital of San Mateo County [3,10]	San Mateo Calif	K H Prindle	404	11		2	
St John's Hospital	Santa Monica Calif	R M Neale	1,692	9	1	1	175
Corwin Hospital [1]	Pueblo Colo	S B Potter	2,901		1	1	125
Greenwich Hospital [1,3]	Greenwich Conn	H P Serrell	1,915	30	1	1	150
J J McCook Memorial Hospital [1,3]	Hartford Conn	C C Kelly	419	14	1	2	
Meriden Hospital [1,3]	Meriden Conn	A J Ryan	2,163	12	2	2	300
Lawrence and Memorial Associated Hospitals [1,3]	New London Conn	F B Hartman	4,209	30	2	2	300
Norwalk Hospital [1,3]	Norwalk Conn	E C Beck	1,429	5	2	2	160
St Mary's Hospital	Waterbury Conn	C H Audet Sr	2,506	15	2	4	225
Doctor's Hospital [1,3-63]	Washington D C	C S White	4,863	28	1	3	150
Sibley Memorial Hospital [1,3,60]	Washington D C	P S Putzki	6,334	13	2	4	200
Riverside Hospital [1-3]	Jacksonville Fla	T Moseley	841	7	1	1	150
St. Luke's Hospital	Jacksonville Fla	K A Morris	1,497	12	2	4	225
St Francis Hospital [1,3]	Miami Beach Fla	J H Tanous	2,324	22	2	2	200
Orange Memorial Hospital [1,3]	Orlando Fla	F D Gray	2,186	19	3	6	
Mound Park Hospital [1]	St Petersburg Fla	E V Pollard	1,102	24	1	1	233
Tampa Municipal Hospital [1,3]	Tampa Fla	C F Chunn	4,168	40	1	1	125
MacNeal Memorial Hospital [1,3]	Berwyn Ill	J L Grout	2,000	7	8	8	225
Englewood Hospital [3]	Chicago	M. M Wasick	2,190	16	1	1	200
Hospital of St Anthony de Padua [1,3]	Chicago	R Johnson	4,264	5	2	2	250
Illinois Central Hospital [1,3]	Chicago	C C Guy	3,154	30	3	8	200
Norwegian American Hospital [1,3]	Chicago	A Triolo	3,283	10	3	8	225
Ravenswood Hospital [1,3]	Chicago	M Field	1,550	10	2	2	75
St Anne's Hospital [1]	Chicago	P F Fox	8,782	23	2	2	200
Women and Children's Hospital	Chicago	E Giryotas	634	7	1	1	100
Woodlawn Hospital [1,3]	Chicago	H P Jenkins	958	8	1	1	200
Little Company of Mary Hospital [1,3]	Evergreen Park Ill	R J Bennett	7,445	13	2	2	175
Methodist Hospital of Central Illinois [1,3]	Peoria Ill	J Mathis	5,909	31	3	8	200
Ball Memorial Hospital [1]	Muncie Ind	J H Clevenger	4,911	42	2	2	200
Mercy Hospital [1,3]	Iowa City	J W Dulin	2,489	18	2	2	150
St Francis Hospital [1,3]	Wichita Kan	W C Bartlett	6,296	58	3	8	275
Good Samaritan Hospital	Lexington Ky	F Massie	1,959	11	1	1	225
Hotel Dieu Sisters Hospital [1]	New Orleans	M Salatich	3,651	23	2	4	200
Central Maine General Hospital [1]	Lewiston Maine	W V Cox	2,184	21	1	1	150
Bon Secours Hospital [3]	Baltimore	G A Stewart	1,047	5	1	2	250
Burbank Hospital [1]	Fitchburg Mass	F Ross	1,997	27	1	1	
Florence Crittenton Hospital [1,3]	Detroit	T T Callaghan	2,148	5	2	2	225
Woman's Hospital [1,3]	Detroit	J R Brown	3,475	18	1	2	250
Edward W Sparrow Hospital [1,3]	Lansing Mich	R W Wadley	4,077	49	1	3	325
St Joseph Mercy Hospital [1,3]	Pontiac Mich	C G Darling	1,674	2		2	325
Asbury Methodist Hospital [1,3]	Minneapolis	R C Webb	1,995	21	1	1	250
Swedish Hospital [1,3]	Minneapolis	H Mattson	6,716		3	8	200
Menorah Hospital Medical Center	Kansas City Mo	P Halperin	5,224	27	2	6	200
St Mary's Hospital [1,3]	Kansas City Mo	F L Feierabend	5,057	44	2	2	200
Missouri Methodist Hospital [1]	St Joseph Mo	M E Grimes	4,386	33	2	2	250
St Anthony's Hospital [1,3]	St Louis	J E Von Kaenel	2,424	28	1	1	150
St John's Hospital [1,3]	St Louis	G T Gafney	3,524	46	2	5	150
Hackensack Hospital [1,3,1,3]	Hackensack N J	A. I Mader Jr	7,158	66	1	8	
Monmouth Memorial Hospital [1,3]	Long Branch N J	H A. Kazmann	2,264	24	3	3	200
Fitkin Memorial Hospital [1,3]	Neptune N J	O K Parry	1,088	6	1	2	
Presbyterian Hospital [1,3,1,3]	Newark N J	R H Hill	6,346	74	4	4	150
Mercer Hospital [1,3]	Trenton N J	E B Beairsto	1,703	14		2	150
Deaconess Hospital [1,3]	Buffalo	T T Jacobs	4,817	22	2	4	250
Mary McClellan Hospital [1,3]	Cambridge N Y	D M Vickers	975	8	1	1	200
Hospital for Joint Diseases	New York City	P Klingenstein	863	9	3	3	80
Jewish Memorial Hospital [1,3]	New York City	B Sherwin	2,141	22	1	1	150
Lebanon Hospital [1,3]	New York City	B Sherwin—M Cohen	2,144	27	1	1	100
Mother Cabrini Memorial Hospital [1,3]	New York City	J P Alvich	1,208	2	1	3	
New York Infirmary [1,3]	New York City	A Hubert	380	2	1	1	150
Sydenham Hospital [1,3]	New York City	S Standard	924	11	2	4	98
St Agnes Hospital	Raleigh N C	G W Paschal	1,053	11	1	1	250
James Walker Memorial Hospital [1,3]	Wilmington, N C	D B Koonce	3,047	13	1	2	150
Kate Bitting Reynolds Memorial Hospital [1]	Winston Salem N C	J M Walker Jr	1,912	24	2	5	200
Bismarck Hospital [3]	Bismarck N D	R H Waldschmidt	720	3	2	2	200
St Luke's Hospital	Fargo N D	V G Borland	1,147	5	1	1	200
Deaconess Hospital [1,3]	Cincinnati	R W Good—J Payne	3,134	20	3	3	175
Fairview Park Hospital [1,3]	Cleveland	W E Smith	1,381	8	2	3	120
Doctors Hospital [1,3]	Cleveland Heights	R R Renner	1,449	12	3	4	200
St Elizabeth Hospital [1]	Dayton Ohio	F H Miller	8,217	34	1	1	225
Marymount Hospital [1,3]	Garfield Heights Ohio	C R Jablonoski	1,5[illegible]9	6	3	3	200
Mercy Hospital [1,3]	Hamilton Ohio	J A Mackie	2,363	20	1	1	250
Mansfield General Hospital [1,3]	Mansfield Ohio	M S Reed	1,009	–	3	3	225
Wesley Hospital [1,2,16]	Oklahoma City	J H Robinson	1,405	10	3	3	225
Providence Hospital [1,3]	Portland Ore	L P Gambee	6,809	63	1	3	175
Bradford Hospital [1,3]	Bradford Pa	S A McCutcheon	1,311	3	3	3	250
Hazleton State Hospital [1,3]	Hazleton Pa	J P H Kettrick	2,409	9	2	4	410
Doctors Hospital [1,3]	Philadelphia	J W Bransfield	938	1	1	1	200
Frankford Hospital [1,3]	Philadelphia	O P Large	1,292	14	1	1	200
St Joseph's Hospital [1,3]	Philadelphia	J A Lehman	1,742	2	1	1	200
St Mary's Hospital [3]	Philadelphia	P McCarthy	2,575	1[illegible]0	1	1	250
Mercy Hospital [3]	Wilkes Barre Pa	F R Hanlon	1,[illegible]	–	1	1	
Columbia Hospital [1,3]	Wilkinsburg Pa	W B Hetzel	3,753	13	1	2	200
Newell Hospital [3]	Chattanooga Tenn	E T Newell Jr	1,9[illegible]	10	3	3	400
Brackenridge Hospital [1,3]	Austin Texas	R O Swearingen	1,741	16	1	4	200
Harris Hospital [1,3]	Fort Worth Texas	C Terrell	4,977	16	4	4	200
Southern Pacific Hospital [3]	Houston Texas	J R Gandy	447	–	1	3	
Thomas D Dee Memorial Hospital [1,3]	Ogden Utah	C M Swindler	2,400	29	2	2	250
Bishop DeGoesbriand Hospital [1,3]	Burlington Vt	A A. Gladstone	1,020	6	1	2	100
Riverside Hospital	Newport News Va.	W H Kretz	2,272	11	2	2	250
De Paul Hospital [1,3]	Norfolk Va.	W Hoover	4,5[illegible]6		2	3	200
St Elizabeth's Hospital [1,3,3,2]	Richmond Va	G W Horsley	9[illegible]2	6	1	2	100

Numerical and other references will be found on pages 414 to 416

26 SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[6]	Total Residencies Offered[6]	Beginning Stipend (Month)
Doctors Hospital[1-3]	Seattle	D K Crystal	8,606	97	1	2	125
Providence Hospital[1]	Seattle	R Pinkham	6,048	67	3	8	200
St Luke's Hospital[1,3]	Spokane Wash	F M Lyle	2,591	82	1	1	150
Mercy Hospital[1,3]	Janesville, Wis	T J Snodgrass	2,493	2	2	2	200
La Crosse Lutheran Hospital[1,3]	La Crosse, Wis	S B Gundersen	1,557	6	1	1	
Methodist Hospital[1,3]	Madison Wis	A S Jackson	5,757	68	2	2	200
Evangelical Deaconess Hospital[1,3]	Milwaukee	K Schlaepfer	2,750	80	2	2	250
St Luke's Hospital[1,3]	Milwaukee	J J Adamkiewicz	1,744	16	3	3	250

27 THORACIC SURGERY

The following services have been approved by the Council on Medical Education and Hospitals without specifying the number of years for which they are accredited

Hospitals, 66, Assistant Residencies and Residencies, 140

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[6]	Total Residencies Offered[6]	Beginning Stipend (Month)
UNITED STATES ARMY							
Fitzsimons Army Hospital[1,56]	Denver	P Ware	639	16			
Army Medical Center[1,3,66,67]	Washington D C	A R Valle	164		1	2	
UNITED STATES NAVY							
U S Naval Hospital[1]	St Albans, N Y	R N Grant	135	1			
VETERANS ADMINISTRATION							
Veterans Admin Hospital[1,3]	Long Beach Calif	J A Weinberg	117	24		2	
Veterans Admin Center[1,2]	Los Angeles	F X Byron	290	19		2	
Veterans Admin Hospital[1]	Hines Ill	H T Langston	416	9		4	
Veterans Admin Hospital[1]	Baltimore	R F Kieffer	147	6	1	1	
Veterans Admin Hospital[1,3]	Rutland Heights Mass	J P Petter	199	1	1	1	
Veterans Admin Hospital[1,3]	Minneapolis	T J Kinsella	104	14			
Veterans Admin Hospital[1,2]	St Louis	T H Burford	10	2		2	
Veterans Admin Hospital[1,3]	Brooklyn	R Klopstock	165	11	1	2	
Veterans Admin Hospital[1,3]	Castle Point N Y	A N Grenda	283	5		2	
Veterans Admin Hospital[3,216]	New York City (Bronx)	A Himmelstein	104	6	2	8	
Veterans Admin Hospital[1,3,217]	Sunmount, N Y	A M Decker, Jr	590			1	
Veterans Admin Hospital[1,3]	Durham N C	J P Collins	70	4		1	
Veterans Admin Hospital[1,3]	Oteen, N C	J D Murphy	937	27		5	
Veterans Admin Hospital[1,3,218]	Cleveland	H J Mendelsohn	168	12	1	2	
Veterans Admin Hospital[1,3]	Memphis Tenn	F A Hughes	858	26	2	3	
Veterans Admin Hospital[1,3]	McKinney, Texas	J Carswell, Jr	251	15	1	2	
Veterans Admin Hospital[1,3]	Richmond, Va	L W Bosher	235	18	1	2	

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[6]	Total Residencies Offered[6]	Beginning Stipend (Month)
Highland Alameda County Hospital[1-3]	Oakland Calif	P Samson	320	5	2	3	195
Harbor General Hospital[1,3]	Torrance Calif	F X Byron	257	16	1	2	200
National Jewish Hospital[1-3]	Denver	J B Grow			3	3	200
Grace New Haven Community Hospital[1-3]	New Haven, Conn	G E Lindskog	315	8		1	50
Cedarcrest Sanatorium	Newington Conn						
Norwich State Tuberculosis Sanitorium (Uncas on Thames)[1,3]	Norwich Conn	W O Kelley		5	1	1	335
George Washington University Hosp	Washington, D C	B Blades					
University Hospital[1,3,78]	Augusta, Ga	R Major	234	4	1	2	160
Children's Memorial Hospital[1,3]	Chicago	W J Potts	178	11		1	75
City of Chicago Municipal Tuberculosis Sanitarium[1-3]	Chicago	W M Lees	2,000	55	8	8	175
University Hospital[1-3,119-123]	Baltimore	O C Brantigan	94		1	2	60
Boston Sanatorium[1-3]	Boston	J W Strieder	162	2	1	8	302
University Hospital[1-3]	Ann Arbor Mich	J Alexander	705	20	2	6	150
Herman Kiefer Hospital[1-3]	Detroit	E J O Brien	1,506	4	4	7	392
Ingham Sanatorium	Lansing Mich	C J Stringer	484	5	1	2	600
Barnes Hospital[1,3]	St Louis	T Burford	707	32		5	60
Berthold S Pollack Hospital for Chest Diseases[1-3]	Jersey City, N J	F Bortone	110		2	2	100
Kings County Hospital[1,3]							
County Service	Brooklyn, N Y	E H Griffin	238	10	1	1	150
University Service	Brooklyn N Y	E Mannix	182	9	1	1	150
Edward J Meyer Memorial Hospital[1-3]	Buffalo	J D Stewart	147	10		2	170
Herman M Biggs Memorial Hospital[1,3]	Ithaca, N Y	R Douglass	224		1	1	400
Triboro Hospital[1,3]	Jamaica, N Y	L Miscall	183	8	4	4	150
Bellevue Hospital Center							
Division I—Columbia University[1-3]	New York City						
Metropolitan Hospital[1,3]	New York City	S A Thompson	100	7	1	2	98
Montefiore Hospital	New York City						
St Joseph's Hospital for Chest Diseases[3]	New York City	W W Fischer	337	3	3	4	150
Homer Folks Tuberculosis Hospital[1,3]	Oneonta N Y	A M Skinner	145	2	1	2	400
Ray Brook State Tuberculosis Hospital[1,3]	Ray Brook N Y	D Pecora	228		2	2	400
Charlotte Memorial Hospital[1-3]	Charlotte, N C	T D Sparrow	131	7	1	1	200
Duke Hospital[1,3]	Durham N C	W C Sealy	440	0		2	
North Carolina Baptist Hospital[1-3,225]	Winston Salem, N C	H H Bradshaw	868	2			
City Hospital[1,3]	Cleveland	C W Munz	80	0		2	183
Benjamin Franklin Hospital[1,3,239]	Columbus, Ohio	M G Buckles	241	3	1	2	150
Ohio State University Hospitals							
Ohio Tuberculosis Hospital[1,3,244]	Columbus, Ohio	N C Andrews	100	1		2	300
University Hospital[1,3]	Columbus, Ohio	K P Klassen	654	23		2	150
University of Oregon Medical School Hospitals and Clinics[1,3]	Portland, Ore	W S Conklin	238	3	1	2	85
Episcopal Hospital[1,3]	Philadelphia	R P Glover	103	7	1	2	100

Numerical and other references will be found on pages 414 to 416

27 THORACIC SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
Hahnemann Medical College and Hospital[1, 3, 139]	Philadelphia	C P Bailey	1 081	69	3	5	
Philadelphia General Hospital[1, 3]	Philadelphia						
Baptist Memorial Hospital[1, 3, 264]	Memphis Tenn	D M Carr	413	6	1	2	100
West Tennessee Tuberculosis Hospital[1, 3]	Memphis Tenn	F H Cole	524	4	2	4	200
Baylor University Hospital[1, 3]	Dallas Texas	R Shaw	581	7	2	2	105
Dr W H Groves Latter Day Saints Hospital[1, 3]	Salt Lake City	W R Rumel	236	10		2	275
University of Virginia Hospital	Charlottesville Va	E C Drash	635	10	1	3	50
Firland Sanatorium[1, 3]	Seattle	F J Jarvis	219	7	1	1	200
Muirdale Sanatorium[1]	Milwaukee	J D Steele	131			1	
Leahi Hospital[1, 3]	Honolulu T H	P W Gebauer	981	1	1	1	400

28 UROLOGY

The following services have been approved by the Council and the American Board of Urology

Hospitals 225 Assistant Residencies and Residencies 619

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY								
Letterman Army Hospital[1, 3-66]	San Francisco	E C Lowry	870	7			3	
Fitzsimons Army Hospital[1, 66]	Denver	J F Patton	210	6			1	
Army Medical Center[1, 3-66-6]	Washington D C	J W Schwartz	529	3	2	6	3	
Brooke Army Medical Center[3, 66, 80]	San Antonio Texas	C C Dodson	987	18			3	
Tripler Army Hospital[1, 66]	Honolulu T H.	L K Mantell	952	1	1	4	3	
UNITED STATES NAVY								
U S Naval Hospital[1, 3]	Oakland Calif	J W Rogers	796	5			3	
U S Naval Hospital[1]	San Diego Calif	J R Dillon Jr	1,108	9	3	3	3	
U S Naval Hospital[1, 3]	Bethesda Md	A C Abernethy	905	4	3	3	3	
U S Naval Hospital[1]	St Albans N Y	J F Richardson	406	2			3	
U S Naval Hospital[1, 3]	Philadelphia	J T Cangelosi	463	5	2	2	3	
UNITED STATES PUBLIC HEALTH SERVICE								
U S Public Health Service Hospital[1, 3]	Stapleton S I N Y	C Ferguson	795	15	1	3	3	
DEPARTMENT OF HEALTH EDUCATION AND WELFARE								
Freedmen's Hospital[1, 3]	Washington D C	R F Jones	270	7		1	3	
VETERANS ADMINISTRATION								
Veterans Admin. Hospital	Birmingham Ala						2	
Veterans Admin Hospital[1, 3]	Long Beach Calif	A. J Bischoff	824	14	4	4	3	
Veterans Admin Center[1, 3]	Los Angeles	W Goodwin	1,133	23	2	7	3	
Veterans Admin Hospital[1]	San Francisco	H. M. Weyrauch F Hinman Jr	851	6	1	3	3	
Veterans Admin Hospital[1, 3]	West Haven Conn	G Read			1	2	2	
Veterans Admin Hospital[1, 3-62]	Washington D C	J G Lee	290	6		1	3	
Veterans Admin. Hospital[1, 72, 76]	Atlanta Ga	G T Cowart	259	5	1	2	2	
Veterans Admin Hospital[1]	Hines Ill.	F A Lloyd	1,578	25	3	11	3	
Veterans Admin Hospital[1]	Des Moines Iowa	R B McConnell	727	13	1	2	2	
Veterans Admin Hospital[1, 3, 300]	Wadsworth Kan	I S Brown	226	6	1	3	3	
Veterans Admin Hospital[1, 3]	Louisville, Ky	M I Schwalbe	238	10	1	2	2	
Veterans Admin Hospital[1-116]	New Orleans	E Burns	211	6	1	3	3	
Veterans Admin Hospital[1-3]	Ft Howard Md	H J Meisel	234	6	1	2	3	
Veterans Admin Hospital[1, 3]	Boston (Jamaica Plain) Mass	S Vose	671	18	1	2	2	
Veterans Admin Hospital[1, 3, 132]	Boston (West Roxbury)	H S Talbot	185			4	3	
Veterans Admin Hospital[1, 3]	Dearborn Mich						1	
Veterans Admin Hospital[1, 3]	Minneapolis	C D Creevy	448	15	1	4	3	
Veterans Admin Hospital[1, 3]	St Louis	W G Lage	27			3	3	
Veterans Admin Hospital[1, 3]	Lincoln Neb	A D Munger	126	2	1	2	3	
Veterans Admin Hospital[1, 3, 178]	Brooklyn	A H Ulm	641	10	1	3	3	
Veterans Admin. Hospital[1, 3, 415]	Buffalo	W M Chardack	447	5		2	3	
Veterans Admin Hospital[3]	New York City (Bronx)	A L Dean	1,057	17	2	4	2	
Veterans Admin. Hospital[1, 3]	Cleveland	H. Grabstald	435	14	1	3	3	
Veterans Admin Hospital[1, 3]	Dayton Ohio	H. I Berman	805	15	1	3	3	
Veterans Admin Hospital[1, 3, 252]	Portland Ore.	D P Paull	393	1		1	1	
Veterans Admin. Hospital[1, 260]	Aspinwall Pa	C A Kuehn	459	12	1	3	3	
Veterans Admin Hospital[1, 3]	Philadelphia		443	13	1	4	2	
Veterans Admin Hospital[1, 3, 258]	Memphis Tenn	W S Bradley Jr	590	7	1	3	3	
Veterans Admin Hospital[2, 0]	Dallas Texas	R C Smith	232	10	1	2	3	
Veterans Admin Hospital[1, 3]	Houston, Texas	J R Blundell	537	11	1	3	3	
Veterans Admin Hospital[1, 3]	McKinney Texas	P A Duff	320	5	1	1	3	
Veterans Admin Hospital[1]	White River Jct Vt	W L McLaughlin	742	12	1	3	3	
Veterans Admin Hospital[1, 3]	Richmond Va	R C Bunts	1,223	8	1	3	3	
Veterans Admin Hospital[1]	Milwaukee	J C Sargent	823	15	1	3	3	

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Length of Approved Program (Years)	Beginning Stipend (Month)
Carraway Methodist Hospital[1, 3]	Birmingham Ala	L Timberlake H Hudson	404	4	1	1	3	250
Jefferson Hillman Hospitals[1, 3-31]	Birmingham Ala	B Barelare	481	9	1	3	3	
Lloyd Noland Hospital[1, 3]	Fairfield Ala	V Scott	206		1	1	1	225
University Hospital[1, 3, 3, 1]	Little Rock Ark.	J W Headstream	195	3	1	4	3	150
Kern General Hospital[1]	Bakersfield Calif.	S G Kearney	297	11		1	2	225
Los Angeles County General Hospital[1]	Los Angeles	J J Crane	2,691	47	1	7	3	200
Presbyterian Hospital-Olmsted Memorial[1, 3]	Los Angeles	C Rusche	1 053	1		1	2	125
White Memorial Hospital[1, 3]	Los Angeles	R W Barnes	449	5	1	3	3	
San Diego County General Hospital[1, 3]	San Diego Calif.	R B Mullenix	805	16	1	2	3	
Southern Pacific General Hospital[1, 3]	San Francisco	T E Gibson	529	2	1	2	3	150
Stanford University Hospitals[1, 3]	San Francisco	H M. Weyrauch	432	1	1	3	3	80

Numerical and other references will be found on pages 414 to 416.

28. UROLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
University of California Hospitals								
Franklin Hospital[1, 2]	San Francisco	J Schulte	472	5	1	2	1	116
San Francisco Hospital (University of California Service)[1, 3]	San Francisco	F S Howard	280	6	1	3		175
University of California Hospital[1-3, 58, 60]	San Francisco	D R Smith	530	2		1	3	87
Santa Clara County Hospital[1]	San Jose, Calif	F E Henderson	206	4		1	2	250
Harbor General Hospital[1, 2, 53]	Torrance Calif	F Belt	597	17	1	4	3	200
University of Colorado Medical Center								
Colorado General Hospital[1, 3]	Denver	D R Higbee	299	8	1	8	3	150
Denver General Hospital[1, 3]	Denver	D E Newland	255	18			3	
Grace New Haven Community Hospital[1, 3]	New Haven, Conn	C L Deming	776	7		2	3	50
Hospital of St Raphael[3]	New Haven Conn	L Maurer	405	1	1	3	3	125
Waterbury Hospital[1]	Waterbury, Conn	C H Neuswanger	598	5	1	1	2	225
Delaware Hospital[1, 2]	Wilmington Del	B S Vallett	533	6	1	2	2	180
District of Columbia General Hospital[1, 3]	Washington, D C	L Culbertson R Baker	413	11	1	8	3	100
Duval Medical Center[1, 3]	Jacksonville, Fla	R B McIver	320	6		1	2	175
St Vincent's Hospital[1, 2]	Jacksonville Fla	R McIver	488	1	1	1	2	135
Jackson Memorial Hospital[1, 3]	Miami Fla	W L Fitzgerald	1 254	10	1	8	3	75
Orange Memorial Hospital[1, 2]	Orlando Fla	J M Orr	1 027	17	2	3	3	
Grady Memorial Hospital[1, 3]	Atlanta Ga	M K Bailey	794	7	2	6	3	20
University Hospital[1, 3]	Augusta Ga	J R Rinker	506	5	1	2	3	160
Alexian Brothers Hospital[2]	Chicago	F Hess	433	3	1	1	1	125
Cook County Hospital[1, 3]	Chicago	W J Baker	889	19	4	4	3	50
Mercy Hospital	Chicago	H F Landes	923	9	1	2	3	100
Michael Reese Hospital[1, 3]	Chicago	I Shapiro	916	11	1	8	3	60
Mount Sinai Hospital[1, 2]	Chicago	L A Maslow	342	4		1	2	
Northwestern University Medical Center[110, 111]								
Chicago Wesley Memorial Hospital[1, 2]	Chicago	V J O'Conor	852	2	1	2	3	60
Presbyterian Hospital[1]	Chicago	N J Heckel	697	9	1	2	3	125
Provident Hospital[1, 3]	Chicago	W S Grant	159	3	1	2	2	200
St Luke's Hospital[1, 2]	Chicago	T Grauer	603	12	1	2	3	50
University of Chicago Clinics[1, 3]	Chicago	C W Vermeulen	446	19	1	3	3	175
Decatur and Macon County Hospital[1]	Decatur, Ill	A C Simon	503	1	2	2		275
Evanston Hospital[1]	Evanston Ill	J Farrell	294	5	1	1	1	50
St Francis Hospital[1, 3]	Evanston Ill	B F Ellis	633	11	1	1	1	175
St Francis Hospital[1, 3]	Peoria Ill	H J Ireland	1 055	3	1	2	3	225
Indianapolis General Hospital[1]	Indianapolis	J F Balch	311	9	2	8	3	300
Indiana University Medical Center[1, 103]	Indianapolis	R Garrett	203	5	1	3	3	165
Methodist Hospital[1, 3]	Indianapolis	J M Young	1,975	10	1	2	2	273
University Hospitals[1, 3]	Iowa City	R H Flocks	1,795	33	3	8	3	75
University of Kansas Medical Center[1]	Kansas City Kan	W Valk	869	22	2	4	3	125
St Joseph Hospital[3]	Lexington Ky	F H Ray	635	3	1	1	1	230
Louisville General Hospital[1, 3]	Louisville, Ky	R Lich Jr	326	2		3	3	105
Charity Hospital of Louisiana								
Independent Unit[1]	New Orleans	R T Mailhes	694	4	1	3	3	100
Louisiana State University Unit[1]	New Orleans	H T Beacham	899	13	2	6	3	100
Tulane University Unit[1]	New Orleans	F Burns	969	16	2	6	3	100
Ochsner Foundation Hospital[1]	New Orleans	F Burns	383	4	1	3	3	200
Confederate Memorial Medical Center[1]	Shreveport, La	R K Womack	642	6	1	8	3	60
Johns Hopkins Hospital[1, 3, 104]	Baltimore	W W Scott	1,052	16		4	3	20
Sinai Hospital[1, 3]	Baltimore	B S Abeshouse	663	11	1	3	3	110
University Hospital[1-3]	Baltimore	W H Toulson	506	9	1	2	3	50
Beth Israel Hospital[1, 3]	Boston	G Prather	466			1	2	100
Boston City Hospital[1, 3]	Boston	F G Sheddan, Jr	610	2		4	3	162
Massachusetts General Hospital[1, 3]	Boston	F H Colby	1 029		1	1	3	
Massachusetts Memorial Hospitals[1, 3]	Boston	S Vose	880	4	1	3	3	100
New England Center Hospital[1, 3, 5-8]	Boston	W F Leadbetter	883	7	1	3	3	83
Peter Bent Brigham Hospital[1, 3]	Boston	J H Harrison				1	1	42
Mount Auburn Hospital	Cambridge Mass	W Leadbetter	119	4			1	125
Salem Hospital[3]	Salem Mass	E L Peirson	402	4	1	1	1	125
University Hospital[1, 3]	Ann Arbor Mich	R Nesbit	1 241	13	2	6	3	170
Grace Hospital[1, 3]	Detroit	L W Hull	1 344	10	1	2	3	225
Harper Hospital[1, 3, 117-119]	Detroit	G Sewell	1,468	30	1	3	3	225
Henry Ford Hospital[1-3]	Detroit	A W Bohne	748	7	2	6	3	225
Receiving Hospital[1, 3]	Detroit	D Jaffar	646	15	2	3	3	254
Wayne County General Hospital and Infirmary[1, 3]	Eloise Mich	M M Musselman	420	31	1	4	3	287
Blodgett Memorial Hospital[1, 3, 146]	Grand Rapids Mich	W J Butler	489	7	1	2	2	200
Minneapolis General Hospital[1, 3]	Minneapolis	T H Sweetser	255	9	1	2	3	182
St Mary's Hospital[1, 3]	Minneapolis	T H Sweetser, Sr	731	12		1	3	200
University of Minnesota Hospitals[1-3]	Minneapolis	C D Creevy	825	10	1	4	3	162
Mayo Foundation[1, 3]	Rochester Minn	G J Thompson	3,541	32	5	16	3	150
Ancker Hospital[1, 3]	St Paul	F E B Foley	388	13	1	3	3	162
Charles T Miller Hospital[1, 5-7]	St Paul	F E B Foley	489	2		1	3	185
Kansas City General Hospital No 1[1, 3]	Kansas City Mo	A L Stockwell	346	12	1	3	3	150
Research Hospital[1, 3]	Kansas City, Mo	R L Hoffman	491	2	1	1	3	150
Barnes Hospital[1, 3]	St Louis	J Cordonnier	967	12	1	3	3	50
Homer G Phillips Hospital[1, 3]	St Louis	M Abrams	460	4		4	3	216
Missouri Baptist Hospital[1, 3]	St Louis	C E Burford	815	7	1	1	1	175
Missouri Pacific Hospital[3]	St Louis	A E Vitt	633	2	1	1	2	
St Louis City Hospital[1, 3]	St Louis	C Wattenberg—W Melick	408	18	1	3	3	137
St Mary's Group of Hospitals[1, 3, 108]	St Louis	C E Burford	637	4	1	3	3	65
Atlantic City Hospital[1, 3]	Atlantic City, N J	J Perez—H Axilrod	252		1	1	2	
Bayonne Hospital & Dispensary[1, 3]	Bayonne, N J	A J Balsamo	732	1	1	3	3	125
Cooper Hospital[1, 3]	Camden, N J	R R Betancourt	692	9	1	2	2	200
Medical Center—Jersey City Hospital[1, 3]	Jersey City N J	E J Daly	588	4	1	3	3	100
Harrison S Martland Medical Center[1, 3]	Newark, N J	E Seidman	336	7	1	2	3	150
Orange Memorial Hospital[1, 3]	Orange, N J	W P Burpeau J K De Vries	525	7	1	1	1	125
Albany Hospital[1-3]	Albany, N Y	J Heslin	965	17	1	2	3	75
Jewish Hospital[1, 2]	Brooklyn	L Baretz	593	8	1	2	2	75
Kings County Hospital[1, 3]								
County Service	Brooklyn	G Horton	843	6	2	3	3	93
University Service	Brooklyn	F C Hamm	651	11	2	3		93
Long Island College Hospital[1, 3]	Brooklyn	F L Senger	647	8	1	3	3	
Maimonides Hospital[1, 2]	Brooklyn	S Immergut—F L Senger	1,001	5	1	3	3	[illegible]
Methodist Hospital[1, 3]	Brooklyn	O P Schoenemann	698	2	1	1	3	75
Buffalo General Hospital[1, 3, 104]	Buffalo	O J Oberkircher	891	3	1	2	3	125

Numerical and other references will be found on pages 414 to 416

28 UROLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered	Total Residencies Offered	Length of Approved Program (Years)	Beginning Stipend (Month)
Edward J Meyer Memorial Hospital [1, 3]	Buffalo	G E Slotkin	343	14	1	3	3	179
Millard Fillmore Hospital [1, 3]	Buffalo	G E Slotkin	862	3	1	3	3	
Meadowbrook Hospital [1]	Hempstead N Y		473	14			3	
Queens General Hospital [1, 3]	Jamaica N Y	E Rubin	322	11	1	3	3	98
Bellevue Hospital Center								
Division II—Cornell University [1, 3]	New York City	J Draper	549	6	1	4	3	98
Division IV—New York University Post Graduate Medical School [1, 3]	New York City	R Hotchkiss	492	8	3	7	3	65
Beth Israel Hospital [1, 3]	New York City	S F Wilhelm	720	6	1	3	3	120
Fordham Hospital [1, 3]	New York City	L V Smiley	255	7		1	1	98
Francis Delafield Hospital [1, 3]	New York City	G Cahill	377	34	1	7	3	98
French Hospital [1, 3]	New York City	J D Cooney	498	5	1	3	3	83
Lincoln Hospital [1, 3]	New York City	F P Twinem	173	6	1	2	3	99
Metropolitan Hospital [1, 3]	New York City	T Kirwin	446	1	1	2	2	98
Morrisania City Hospital [1, 3]	New York City	J Duff	739	16	1	4	3	
Mount Sinai Hosptal [1, 3]	New York City	G Oppenheimer	1 066	12	1	3	3	60
New York City Hospital [1, 3]	New York City	J H Morrissey	273	9	1	2	2	98
New York Hospital [1, 3]	New York City	V Marshall	1 055		4	6	3	84
New York Polyclinic Medical School and Hospital [1, 3]	New York City	J S Ritter	674	8	1	2	3	100
Presbyterian Hospital [1, 3]	New York City	G F Cahill	1,592	11	2	6	3	
Roosevelt Hospital [1, 3, 65]	New York City	S A Belsler	601	7	1	3	3	116
St Clare s Hospital [1, 3]	New York City	G H Fiedler	413	4	1	3	3	125
St Luke s Hospital [1-3]	New York City	J A Taylor	595	6	1	3	3	75
Strong Memorial Rochester Municipal Hospitals [1, 3]	Rochester N Y	W W Scott	827		1	3	3	42
Sea View Hospital [1, 3]	Staten Island N Y	A J Greenberger	755	2	2	2	1	150
Charlotte Memorial Hospital [1, 3]	Charlotte N C	H McKay	1,382	5	1	3	3	200
Duke Hospital [1, 3, 79]	Durham N C	E P Alyea	576	4	1	3	3	65
Watts Hospital [1, 3]	Durham N C	L C Roberts	580	5	1	3	2	100
North Carolina Baptist Hospital [1, 3]	Winston Salem N C	F K Garvey	534	2			3	
City Hospital [1-3]	Akron Ohio	W A Keltzer	1 051	14	1	4	3	235
Cincinnati General Hospital [1, 3]	Cincinnati	T B Wayman	632	23	1	1	2	
City Hospital [1-3]	Cleveland	H R Trattner	290	7		2	3	150
Cleveland Clinic Hospital [1, 3]	Cleveland	C C Higgins	1,207	11	3	9	3	175
University Hospitals [1, 3]	Cleveland	G Austen	683	5		2	2	125
Ohio State University Hospitals								
University Hospital [1, 3, 235, 41]	Columbus Ohio	W N Taylor	621	10	2	6	3	150
Huron Road Hospital [1, 3]	East Cleveland	V C Laughlin	609	7	1	3	3	210
St Vincent's Hospital [1, 3]	Toledo Ohio	E A Ockuly	1,060	9	1	3	3	225
University Hospitals [1-3]	Oklahoma City	D Branham	257	4	1	2	3	95
Hillcrest Medical Center [1]	Tulsa Okla	H M Cohenour	557	1	1	1	3	
St John s Hospital [1, 3]	Tulsa Okla	B H Blocksom	887	8	1	3	3	
St Vincent s Hospital [1, 3]	Portland Ore	J R Hand	1 094	13	1	2	2	175
University of Oregon Medical School Hospitals and Clinics [1, 3-253]	Portland Ore	C Hodges	338	10	1	4	3	85
Allentown Hospital [1, 3]	Allentown Pa	W O Masonheimer	872	8	1	1	2	225
George F Geisinger Memorial Hospital [1, 3]	Danville Pa	W I Buchert	1 060	8		3	3	125
St Vincent's Hospital [1, 3]	Erie Pa	E Hess	1 092	17	1	4	3	100
Harrisburg Hospital [1, 3]	Harrisburg Pa	R. E Allyn	610	3	1	2	2	250
Albert Einstein Medical Center								
Southern Division [1, 3]	Philadelphia	M Muschat—I J Carp	513	6	1	1	2	150
Episcopal Hospital [1, 3]	Philadelphia	G D Shoup	365	4	1	2	2	100
Germantown Dispensary and Hospital [1-3]	Philadelphia	F P Massaniso	5 722	1	1	1	1	150
Graduate Hospital of the University of Pennsylvania [1, 3]	Philadelphia	C A W Uhle	167	4	1	1	1	
Hahnemann Medical College and Hospital [1, 3]	Philadelphia	E W Campbell	841	5	1	3	3	
Hospital of the University of Pennsylvania [1, 3]	Philadelphia	B Hughes	747	8	1	4	3	125
Jefferson Medical College Hospital [1, 3]	Philadelphia	T R Fetter	1,092	9	2	3	3	40
Lankenau Hospital [1, 3]	Philadelphia	C A W Uhle	412	2	1	2	2	100
Pennsylvania Hospital [1, 3]	Philadelphia	L B Greene	428	1	2	2	3	20
Philadelphia General Hospital [1, 3]	Philadelphia	L E McCrea	413	11	2	6	3	113
Presbyterian Hospital [1, 3, 21]	Philadelphia	F G Harrison	341	5	1	1	2	100
Temple University Hospital [1, 3]	Philadelphia	K. B Conger	543	3	1	2	3	
Allegheny General Hospital [1, 3]	Pittsburgh	J L Hamilton	613	4	2	2	3	
Mercy Hospital [3]	Pittsburgh	C C Altman	537	3	1	1	3	175
Pittsburgh Medical Center [1]	Pittsburgh	J J Lee	543			2	3	125
Robert Packer Hospital [1, 3]	Sayre Pa	W Baurys	468	10		1	3	150
Mercy Hospital [3]	Wilkes-Barre, Pa	F P Judge	260	3	1	1	1	
Wilkes-Barre General Hospital [1]	Wilkes-Barre Pa	W J Daw	746	6	1	2	2	225
Rhode Island Hospital [1-3]	Providence R I	H K. Turner	799	7	1	2	2	60
Roper Hospital [1, 3]	Charleston S C	J J Ravenel	789	3	1	3	3	83
Orangeburg Regional Hospital [3]	Orangeburg S C	L. P Thackston	1,173	14	1	2	3	200
Baptist Memorial Hospital [1, 3, 264]	Memphis Tenn	H D Woodson	1,263	6		1	1	100
John Gaston Hospitals [1, 3]	Memphis Tenn	T D Moore	762	13	2	6	3	35
St Joseph Hospital [1, 3]	Memphis Tenn	C D Allen	727	7	1	3	3	
Vanderbilt University Hospital	Nashville, Tenn	C E Haines	280	1	1	1	3	50
Parkland Hospital [1, 3]	Dallas Texas	H M Spence	356	4	1	2	3	125
University of Texas Medical Branch Hospitals [1, 3]	Galveston Texas	R. E Cone	470	6	1	4	3	150
Hermann Hospital [1, 3, 127]	Houston Texas	C M Crigler	2 150	10	2	4	3	100
Jefferson Davis Hospital [1]	Houston Texas	R. Blundell	422	11		2	3	50
St Joseph s Infirmary [3]	Houston Texas	M K O Heeron	662	4	1	1	1	175
Mary Fletcher Hospital [1, 3]	Burlington Vt	P R Powell	405	4	1	3	3	100
University of Virginia Hospital [1, 3]	Charlottesville Va	S A Vest	684	7	1	4	3	50
Medical College of Virginia—Hospital Division [1, 3, 71]	Richmond Va	A I Dodson	805	2	1	3	3	75
La Crosse Lutheran Hospital [1, 3]	La Crosse Wis	A. H Gundersen	444	5	1	1	1	
Madison General Hospital [1, 3]	Madison Wis	L R Sisk	798	3		1	3	150
University Hospitals								
State of Wisconsin General Hospital [1]	Madison Wis	J B Wear	455	7	1	3	3	
Milwaukee County Hospital [1, 3]	Milwaukee	R S Irwin	709	15	1	3	3	205
San Juan City Hospital [1, 3]	San Juan P R	L A Sanjurjo	178		2	3	3	

Numerical and other references will be found on pages 414 to 416

Information regarding the Advisory Board for Medical Specialties and the 19 Examining Boards for Medical Specialties which is ordinarily included in the Internship and Residency Number will be published in the Oct 2, 1954 issue of The Journal The Directory of Approved Internships and Residencies published as a separate reprint will include this information

Numerical and Other References

1 Appointments available to women applicants
2 Approved for training in syphilology only
3 Appointments available to graduates of foreign medical schools Details regarding requirements for appointment can be secured from the hospitals concerned
4 Approved as offering acceptable affiliated training (maximum three months) in concurrence with the American Board of Pediatrics
5 Maximum of six months training in contagious diseases accepted by the American Board of Pediatrics
6 May include training in allergy
7 May include fellowship training in cardiology
8 Includes fellowships
9 May include one year of fellowship in Division of Endocrinology
10 Includes one year fellowship in Immuno Hematology
11 May include training "Home Care Service
12 May include one year in the Medical Research Institute (and Post graduate School)
13 Includes one year fellowships available in psychosomatic medicine
14 May include one year fellowship in the Department of Oncology
15 Additional year of training including pathology, University of Chicago Clinics available
16 May include six months assignment to Department of Rehabilitation and Physical Medicine approved program
17 May include one year of training in the Department of Surgical Pathology
18 May include one year of training in Chronic Diseases at Jewish Hospital Roxbury or Holy Ghost Hospital Cambridge Mass
19 Includes six months' assignment, Ohio State University Medical School Columbus, Ohio
20 May include assignment to the Institute for Cancer Research and Lankenau Hospital Research Institute, Philadelphia
21 Includes assignment at Urologic Clinic, Philadelphia
22 Apply Office of Graduate Medical Education University of Colorado Medical Center
23 Apply Director Graduate Division Northwestern University Medical School 303 East Chicago Avenue Chicago 11
24 Apply Medical College State of South Carolina

The following hospitals offer acceptable training which is integrated with or contributing to the fully approved program in the listing of which the footnote reference appears

25 Maricopa County Hospital Phoenix Ariz
26 Veterans Administration Hospital, Little Rock, Ark
27 University Hospital Little Rock, Ark
28 California Hospital Los Angeles
29 Children's Hospital Los Angeles
30 Los Angeles County General Hospital Los Angeles White Memorial Hospital Los Angeles
31 Los Angeles County General Hospital Los Angeles
32 Veterans Administration Hospital, Los Angeles
33 White Memorial Hospital Los Angeles
34 Samuel Merritt Hospital Oakland, Calif
35 Orange County Hospital Orange, Calif
36 Franklin Hospital San Francisco
37 Franklin Hospital Shriners Hospital for Crippled Children, Langley Porter Clinic Hospital San Francisco
38 House of the Good Shepherd, San Francisco, Misericordia Hospital, Milwaukee
39 St Luke's Hospital, San Francisco Herrick Memorial Hospital, Berkeley Calif Highland Hospital, Oakland, Calif
40 San Francisco Hospital San Francisco
41 Southern Pacific General Hospital, San Francisco
42 University of California Hospital, San Francisco
43 Ernest V Cowell Memorial Hospital, Berkeley, Calif Franklin Hospital St Luke's Hospital, and Langley Porter Clinic Hospital, San Francisco
44 Fairmont Hospital of Alameda County, San Leandro Calif
45 Santa Barbara General Hospital, Santa Barbara Calif
46 Santa Monica Hospital Santa Monica, Calif
47 Santa Monica Hospital, Santa Monica, Calif , Orange County Hospital Orange Calif , Collis P and Howard Huntington Memorial Hospital Pasadena Calif
48 Memorial Center New York City
49 Denver General Hospital, Denver
50 Fitzsimons Army Hospital, and Children's Hospital, Denver
51 Jewish Hospital St Joseph's Hospital, Denver
52 Veterans Administration Hospital, Spokane, Wash
53 New England Deaconess Hospital Massachusetts General Hospital, Boston
54 Hartford Hospital Hartford, Conn Newington Home and Hospital for Crippled Children, Newington, Conn , New York University Bellevue Medical Center, New York City
55 Veterans Administration Hospital, Newington, Conn , Memorial Hospital New York City, State Veterans Home and Hospital, Rocky Hill, Conn
56 Newington Home and Hospital for Crippled Children, Newington, Conn
57 Veterans Administration Hospital, Newington, Conn , McCook Memorial Hospital, Hartford, Conn
58 McCook Memorial Hospital, Hartford Conn , St Agnes Home, Hartford, Conn Newington Home and Hospital for Crippled Children Newington, Conn
59 Uncas on Thames State Tuberculosis Sanatorium, Norwich, Conn
60 Laurel Heights Sanatorium, Shelton, Conn
61 Grace New Haven Community Hospital, New Haven, Conn
62 Children's Hospital, Washington, D C
63 Eastern Dispensary and Casualty Hospital, Washington, D C
64 District of Columbia General Hospital, Washington, D C
65 Garfield Memorial Hospital Washington, D C
66 Available only to U S Army Regular Army Medical Corps officers and eligible applicants for the U S Regular Army Medical Corps Apply Office of the Surgeon General Department of the Army, Washington 25, D C , Attention Personnel Division
67 Walter Reed Army Hospital and Army Medical Department Research and Graduate School, Washington, D C
68 Mercy Hospital Miami, Fla
69 National Children's Cardiac Home, Miami, Fla
70 Variety Children's Hospital, Miami, Fla
71 Brewster Hospital Jacksonville, Fla
72 Grady Memorial Hospital, Atlanta, Ga
73 Veterans Administration Research Hospital, Passavant Memorial Hospital, Chicago
74 University Hospital, Augusta Ga
75 Columbus City Hospital, Columbus, Ga Macon City Hospital Macon, Ga
76 Emory University Hospital, Emory University, Ga
77 Battey State Hospital, Rome, Ga , Milledgeville State Hospital Milledgeville Ga
78 Battey State Hospital, Rome, Ga
79 Chicago Lying In Hospital, Chicago
80 Columbus Hospital Chicago
81 May include six months training at Children's Memorial Hospital, Chicago
82 Cook County Hospital, Chicago
83 May include 1 year training in hematology
84 University of Illinois Research and Educational Hospitals Chicago
85 City of Chicago Municipal Tuberculosis Sanitarium, Chicago
86 Illinois Eye and Ear Infirmary Chicago
87 La Rabida Jackson Park Sanitarium Chicago
88 Lewis Memorial Maternity Hospital Chicago
89 Municipal Contagious Disease Hospital, Chicago
90 Institute for Juvenile Research Chicago
91 Presbyterian Hospital Chicago
92 Institute for Juvenile Research Chicago, Illinois Mental Health Center, Chicago Dixon State School, Dixon Ill
93 St Anne's Hospital Chicago
94 Includes one year of training at Charity Hospital, Tulane University Service New Orleans
95 St Luke's Hospital, Chicago Veterans Administration West Side Hospital Chicago
96 St Vincent's Infant and Maternity Hospital, St Anne's Hospital, Mercy Hospital Misericordia Hospital, Chicago
97 University of Chicago Maternity Center Chicago
98 Chicago Wesley Memorial Hospital, Chicago
99 Women's and Children's Hospital Chicago
100 Veterans Administration Hospital, Fort Wayne Ind
101 Indianapolis General Hospital Indianapolis
102 Indiana University Medical Center, Indianapolis
103 Veterans Administration Hospital, Indianapolis
104 Inlow Clinic Shelbyville, Ind
105 Healthwin Hospital South Bend, Ind
106 Northern Indiana Children's Hospital South Bend, Ind
107 Broadlawns Polk County Hospital, Des Moines, Iowa
108 University of Iowa Hospitals Iowa City
109 Veterans Administration Hospital, Kansas City Mo
110 Veterans Administration Research Hospital, Chicago
111 Louisville General Hospital Louisville Ky
112 U S Public Health Service Hospital Lexington Ky
113 San Juan City Hospital San Juan P R
114 Kentucky Baptist Hospital, Norton Memorial Infirmary, Children's Hospital Louisville Ky
115 University of Louisville Hospitals, Louisville, Ky
116 Charity Hospital New Orleans
117 Charity Hospital Louisiana State University Unit, New Orleans
118 May include training in gerontology
119 Baltimore City Hospitals Baltimore
120 Hospital for Women of Maryland Baltimore
121 James Lawrence Kernan Hospital, Baltimore
122 Johns Hopkins Hospital, Baltimore
123 Mercy Hospital, Baltimore
124 University Hospital Baltimore
125 U S Public Health Service Hospital Baltimore
126 Prince George General Hospital, Cheverly, Md
127 Southern Pacific Hospital, Univ of Texas M D Anderson Hospital for Cancer Research, Houston Texas
128 Harford Memorial Hospital Havre de Grace Md
129 La Plata Hospital, La Plata, Md , U S Public Health Service Hospital Veterans Admin Hospital Baltimore
130 Peninsula General Hospital Salisbury, Md
131 Boston Children's Hospital Boston
132 Integrated with program at Peter Bent Brigham Hospital, Boston, to which application for appointment should be made
133 Boston Lying In Hospital Boston
134 Soldiers Home, Chelsea, Mass
135 Children's Hospital, Boston
136 Children's Medical Center, Boston
137 Lahey Clinic, Boston
138 Massachusetts General Hospital Boston
139 Overholt Clinic, Boston
140 Peter Bent Brigham Hospital, Boston
141 Free Hospital for Women Brookline, Mass
142 Cambridge Tuberculosis Sanatorium Cambridge Mass
143 St Margaret's Hospital Dorchester, Mass
144 Lakeville State Sanitarium, Middleboro, Mass , Veterans Administration Hospital, Boston
145 Salem Hospital, Salem Mass
146 Veterans Administration Hospital Dearborn, Mich
147 Receiving Hospital, Detroit
148 Children's Receiving Hospital, Herman Kiefer and Detroit Industrial hospitals, Detroit
149 Herman Kiefer Hospital, Detroit
150 Womans Hospital Herman Kiefer Hospital Detroit Memorial Hospital, Children's Hospital, Detroit.

Numerical and Other References—Continued

151 Cardiac Clinic Grand Rapids Mich
152. Evangeline Home and Hospital Grand Rapids Mich
153 Oakland County Contagious Hospital Oakland County Tuberculosis Sanatorium Pontiac Mich
154 St Joseph's Mercy Hospital Pontiac Mich
155 Pontiac State Hospital Pontiac Mich
156 University of Minnesota Hospitals Minneapolis
157 Ancker Hospital St Paul
158 Ellis Fischel State Cancer Hospital Columbia Mo
159 *Robert Koch Hospital Koch Mo*
160 St Anthony's Hospital, St Louis
161 St John's Hospital St Louis
162 *St Louis City Hospital St Louis*
163 St Louis County Hospital St Louis
164 Burge Hospital Springfield Mo St Louis County Hospital St Louis Maternity Hospital St Louis
165 Veterans Administration Hospital, St Louis
166 St Louis State Hospital St Louis
167 *St Mary's Infirmary St Louis*
168 Bryan Memorial and Lincoln General hospitals Lincoln Neb
169 Children's Memorial Hospital Omaha
170 *Research Hospital, Kansas City Mo Veterans Administration Hospital Wadsworth Kan*
171 St Joseph's Hospital Omaha
172. Essex County Isolation Hospital Belleville N J
173. St Luke's Hospital New York City
174 Margaret Hague Maternity Hospital Jersey City N J
175 Babies Hospital Colt Memorial Harrison S Martland Medical Center Newark N J
176 Albany Hospital Albany N Y
177 Brooklyn Eye and Ear Hospital Brooklyn.
178 Long Island College Hospital Brooklyn
179 Jewish Hospital Brooklyn
180 Brooklyn State Hospital Brooklyn
181. Brooklyn Hospital Maimonides Hospital Kings County Hospital, Brooklyn New York State Psychiatric Institute New York City
182. John E Jennings Hospital Brooklyn
183 Kings County Hospital Brooklyn
184 Kingston Avenue Hospital, Brooklyn
185 Veterans Administration Hospital Brooklyn
186 Allied Sisters of Charity Hospital, Buffalo
187 Buffalo Eye and Ear Hospital Buffalo
188 Children's Hospital Buffalo
189 Children's Hospital Roswell Park Memorial Institute Buffalo Peter Bent Brigham Hospital Boston
190 Hospital for Special Surgery New York City
191 Hospital for Special Surgery Willard Parker Hospital Memorial Center for Cancer and Allied Diseases New York City
192. Edward J Meyer Memorial Hospital Buffalo
193. Emergency Hospital Buffalo
194 Edward J Meyer Memorial Hospital and Chronic Disease Research Institute Buffalo
195 Presbyterian Hospital New York City
196 Veterans Administration Hospital (Bronx) New York City
197 Bellevue Hospital Center New York City
198 Harlem Hospital Morrisania City Hospital, New York City
199 Beth Israel Hospital New York City
200 Flower and Fifth Avenue Hospitals New York City
201 New York State Psychiatric Institute New York City
202 Letchworth Village Thiells N Y Payne Whitney Psychiatric Clinic New York City
203 Memorial Center for Cancer and Allied Diseases New York City
204 New York State Psychiatric Institute Columbia Presbyterian Medical Center New York City
205 Beekman Downtown Hospital New York City
206 New York Hospital New York City
207 Roosevelt Hospital New York City
208 Columbia Presbyterian Medical Center New York City
209 Willard Parker Hospital New York City
210 Woman's Hospital New York City
211 Summit Park Sanatorium Pomona N Y
212. Genesee Hospital Rochester N Y
213 Baylor University Hospital, Gaston Hospital Texas Children's Hospital Dallas
214 Rochester General Hospital, Rochester N Y
215 Strong Memorial Rochester Municipal Hospitals Rochester N Y
216 Veterans Administration Hospital Sunmount N Y
217 Veterans Administration Hospital (Bronx) New York City
218 Richmond Borough Hospital Staten Island N Y
219 St Michael's Hospital Newark N J
220 May include period of 3 months to 1 year of Forensic Pathology in the Coroner's Office of the Parish of Orleans
221 Roswell Park Memorial Institute Buffalo
222. Grasslands Hospital Valhalla N Y
223 St Agnes Hospital White Plains N Y
224 St Joseph's Hospital Yonkers N Y
225 Western North Carolina Sanatorium Black Mountain N C Guilford County Sanatorium Jamestown N C
226 North Carolina Memorial Hospital Chapel Hill N C Lincoln Hospital Watts Hospital Durham N C
227 Duke Hospital Durham N C
228 Veterans Admin Hospital Watts Hospital Durham N C Veterans Administration Hospital Roanoke Va
229 Veterans Administration Hospital Durham N C (Available for all services for male patients)
230 McPherson Hospital Durham N C
231 Watts Hospital Durham N C
232. U S Army Hospital Fort Bragg N C
233 City Memorial Hospital Winston Salem N C
234 City Hospital Peoples Hospital St Thomas Hospital Akron Ohio
235 Children's Hospital Akron Ohio
236 Longview State Hospital Cincinnati
237 St Mary's Hospital Cincinnati
238 Children's Hospital, Columbus Ohio
239 Mount Carmel Hospital Columbus Ohio
240 Ohio Tuberculosis Hospital, Columbus Ohio
241 St Francis Hospital, Columbus Ohio
242. St Francis Hospital Ohio Tuberculosis Hospital Children's Hospital, Columbus Ohio
243 St Francis Hospital Ohio Tuberculosis Hospital Columbus Receiving Hospital Columbus Ohio
244 Ohio State University Hospital Columbus Ohio
245 St Anthony Hospital Oklahoma City
246 University of Oklahoma Hospitals Oklahoma City
247 Veterans Administration Hospital Oklahoma City
248 Central State Griffin Memorial Hospital Norman Okla
249 Good Samaritan Hospital Veterans Administration Hospital Portland Ore
250 Oregon State Hospital Salem Ore
251 Milwaukee Children's Hospital Veterans Administration Hospital Milwaukee
252 University of Oregon Medical School Hospitals and Clinics, Portland Ore
253 Veterans Administration Hospital Portland Ore
254 Children's Hospital Philadelphia
255 Hospital of the University of Pennsylvania Philadelphia
256 Philadelphia General Hospital Northern Division Philadelphia
257 Presbyterian Hospital Philadelphia
258 St Vincent's Hospital for Women and Children Philadelphia
259 Temple University Hospital Philadelphia General Hospital—Northern Division Lankenau Hospital Philadelphia Abington Memorial Hospital Abington Pa
260 Pittsburgh Medical Center Pittsburgh
261 Western Pennsylvania Hospital Pittsburgh
262. Providence Lying In Hospital Providence R I Charity Hospital New Orleans Boston Lying In Hospital Boston.
263 Providence Lying In Hospital Charles V Chapin Hospital Providence R I Emma Pendleton Bradley Home Riverside R I Children's Hospital Boston
264 John Gaston Hospital Memphis Tenn
265 LeBonheur Children's Hospital Memphis Tenn
266 West Tennessee Tuberculosis Hospital, Memphis Tenn.
267 LaRue D Carter Memorial Hospital Indianapolis
268 St Thomas Hospital, Nashville Tenn
269 D T Watson Home for Crippled Children Leetsdale Pa
270 Children's Hospital Dallas Texas
271 Parkland Hospital Dallas Texas
272 St Mary's Infirmary Galveston Texas
273 Hermann Hospital Houston Texas
274 Houston Tuberculosis Hospital Houston Texas
275 Jefferson Davis Hospital Houston Texas
276 *Univ of Texas M D Anderson Hospital* Houston Texas
277 St Joseph's Hospital Houston Texas
278 Veterans Administration Hospital Houston Texas
279 *Queen's Hospital,* Honolulu T H
280 Brooke Army Hospital 4th Army Medical Laboratory and Medical Field Service School San Antonio Texas
281 Indianapolis General Hospital Indianapolis
282 Children's Hospital Philadelphia
283 Salt Lake County General Hospital Salt Lake City
284 Shriners Hospital for Crippled Children Salt Lake City
285. Methodist Hospital Memphis Tenn
286. Bishop DeGoesbriand Hospital Burlington Vt Trudeau Sanatorium Trudeau N Y Children's Hospital Boston
287 Mary Fletcher Hospital Burlington Vt
288 Kerbs Memorial Hospital St Albans Vt Porter Hospital Middlebury Vt
289 Vermont State Hospital Waterbury Vt
290 Arlington Hospital Arlington Va
291 McGuire Hospital Richmond Va
292. Richmond Eye Ear Nose and Throat Hospital, Richmond Va
293 Children's Orthopedic Hospital Seattle
294 Firland Sanatorium Seattle
295 Booth Memorial Hospital Spokane Wash
296 Columbia Hospital Milwaukee
297 A third year of training in radiology is provided through affiliation with Milwaukee Hospital and Milwaukee Children's Hospital and the University of Chicago Clinics
298 Milwaukee Hospital, Milwaukee
299 Chesapeake and Ohio Hospital Huntington W Va
300 Veterans Admin Hospital Canandaigua N Y
301 Kapiolani Maternity Hospital, Honolulu T H
302 Territorial Hospital Kaneohe T H Salvation Army Girls Home Honolulu T H
303 Freedmen's Hospital, Washington D C George W Hubbard Hospital of Meharry Medical College Nashville Tenn
304 Jefferson Medical College and Hospital Philadelphia
305 Montefiore Hospital Westchester Division Bedford Hills N Y
306 Franklin Hospital, San Francisco
307 Veterans Administration Hospital Louisville Ky
308 Maternity Hospital Minneapolis
309 North Carolina Memorial Hospital Chapel Hill N C
310 St Luke's Hospital, Spokane Wash
311 Passavant Memorial Hospital Chicago
312. Veterans Administration Hospital, Birmingham Ala
313 Crippled Children's Hospital Birmingham Ala
314 Pierce County Hospital Tacoma Wash
315 John A Andrew Memorial Hospital Tuskegee Institute Ala
316 Veterans Administration Hospital Brecksville Ohio
317 Veterans Administration Hospital North Little Rock Ark
318 Arkansas State Hospital Little Rock Ark
319 St Vincent's Infirmary Little Rock Ark.
320 Missouri Pacific Hospital Little Rock Ark
321 Arkansas Children's Home and Hospital Arkansas State Hospital, Veterans Admin Hospital Little Rock Ark.
322 University Hospital Little Rock Ark.
323 Langley Porter Clinic-Hospital San Francisco
324 Highland Alameda County Hospital Oakland Calif
325 Virginia Mason Hospital, Seattle Wash
326 Rancho Los Amigos Hondo Calif Olive View Sanatorium Olive View Calif
327 Massachusetts Memorial Hospitals Boston Truesdale Hospital Fall River Mass
328 Glendale Sanitarium and Hospital Glendale Calif
329 Metropolitan Hospital Norwalk Calif
330 Stanford University Hospital, San Francisco
331 Children's Hospital of the East Bay Oakland Calif.

Numerical and Other References—Continued

332 Children's Hospital San Francisco Veterans Administration Hospital Oakland Calif
333 Woman's Hospital Pasadena, Calif
334 County Community Hospital San Mateo, Calif
335 Holy Cross Hospital Salt Lake City
336 Evanston Hospital Evanston Ill
337 Swedish Hospital Seattle
338 King County Hospital Unit #1 (Harborview), Seattle
339 Mill Memorial Hospital San Francisco
340 San Joaquin General Hospital French Camp Calif
341 Colorado General Hospital Denver General Hospital Denver
342 General Rose Memorial Hospital Denver
343 Cedarcrest State Tuberculosis Sanatorium Newington Conn
344 Hartford Hospital Hartford Conn
345 Norwalk Hospital Norwalk Conn Greenwich Hospital, Greenwich, Conn Stamford Hospital Stamford, Conn , Neurological Institute, New York City
346 Hospital of St Raphael, New Haven Conn Southbury Training School Southbury Conn
347 Uncas on Thames, Norwich, Conn Windham Memorial Hospital, Willimantic Conn
348 Grace New Haven Community Hospital New Haven, Conn , Stamford Hospital Stamford Conn
349 Glenn Dale Tuberculosis Sanatorium, Glenn Dale Md
350 Children's Hospital Washington D C Suburban Hospital, Bethesda Md
351 Georgetown University Hospital St Elizabeth's Hospital, Washington D C Chestnut Lodge (Sanitarium) Rockville Md
352 Georgetown University Hospital Washington D C
353 Children's Hospital District Municipal Hospital Washington, D C Children's Convalescent Home Rockville Md Dr Phillips Clinic and Walter Reed Army Hospital Washington D C
354 Episcopal Eye Ear Nose and Throat Hospital, Washington, D C
355 Sibley Memorial Hospital Washington D C
356 Children's and Emergency Hospitals Washington D C
357 Children's Georgetown University and Emergency hospitals, Washington D C
358 District of Columbia General Hospital St Elizabeths Hospital Washington D C Veterans Administration Hospital, Martinsburg W Va
359 Veterans Admin Hospital Boston (West Roxbury) Mass
360 Central Dispensary and Casualty Hospital Washington D C
361 Georgetown University Hospital George Washington University Hospital Columbia Hospital for Women Washington, D C U S Naval Hospital Bethesda Md Warwick Clinic Warwick N Y
362 Georgetown University and George Washington University Hospitals, Washington D C
363 U S Naval Hospital, Bethesda Md
364 St Luke's and Brewster Hospitals Jacksonville Fla
365 Illinois Neuropsychiatric Institute, Illinois Institute for Juvenile Research Veterans Rehabilitation Center, Chicago Dixon State School Dixon, Ill
366 Children's Mercy Hospital Veterans Administration Hospital Research Hospital Kansas City General Hospital #1, St Joseph's Hospital St Luke's Hospital, Kansas City Mo
367 Wesley Hospital Wichita Kan
368 Augusta State Hospital Augusta Maine Redington Memorial Hospital Skowhegan Maine Thayer Hospital Waterville Maine
369 Retreat for the Sick Hospital, Pine Camp Hospital Sheltering Arms Hospital Richmond Va
370 Chesapeake and Ohio Hospital Clifton Forge, Va
371 Veterans Administration Hospital and Mt Wilson Sanitarium, Baltimore
372 Medical College of Virginia Hospital Richmond Va
373 Massachusetts General Hospital Douglas Thom Clinic for Children, James Jackson Putnam Children's Center
374 Soldiers' Home at Chelsea Salem Hospital Faulkner Hospital Newton Wellesley Hospital, Mt Auburn Hospital St Elizabeth's Hospital
375 Boston Psychopathic Hospital, Worcester State Hospital Massachusetts General Hospital, Beth Israel Hospital, Judge Baker Guidance Center
376 Salem Hospital, Salem Mass Snyder Jones Clinic, Winfield, Kan , Middlesex County Sanatorium, Waltham, Mass
377 Boston City Hospital Framingham Union Hospital, Truesdale Hospital Lowell General Hospital Mattapan Sanatorium, Veterans Administration Hospital Providence, R I
378 Eastern Maine General Hospital, Lewiston, Maine Boston City Hospital Boston Dispensary, Boston Floating Hospital, Boston, Lynn Hospital Lynn Mass
379 Carney Hospital Boston
380 Massachusetts General Hospital, Evans Memorial Hospital, Haynes Memorial Hospital
381 Haynes Memorial Hospital, Boston
382 Boston City Hospital, New England Center Hospital
383 Boston Psychopathic Hospital, Boston
384 Utah State Hospital Provo, Utah
385 Methodist Hospital Houston, Texas
386 Children's Receiving Hospital, Herman Kiefer Hospital, Detroit
387 Detroit Tubercular Sanitarium, Detroit
388 Children's Hospital, Detroit
389 Woman's Hospital, Detroit
390 Hurley Hospital Genesee County Tuberculosis Sanitarium
391 St Mary's Hospital, Blodgett Memorial Hospital, Grand Rapids, Mich , University Hospital Ann Arbor, Mich
392 University Hospital, Ann Arbor, Mich
393 Herman Kiefer Hospital, Wayne County General Hospital, Detroit Tuberculosis Sanitarium
394 Lauer State Hospital
395 Taborian Hospital Mount Bayou, Miss
396 Mississippi State Charity Hospital, Vicksburg, Miss
397 Veterans Administration Hospital Minneapolis
398 Minneapolis General Hospital, Ancker Hospital, Shriners Hospital for Crippled Children, Gillette Hospital
399 Mayo Clinics, Rochester, Minn
400 St Louis City Hospital St Louis Children's Hospital Koch Hospital Ellis Fischel Hospital, Veterans Administration Hospital
401 St Luke's Hospital, Florence Crittenton Home, Kansas City, Mo
402 Children's Mercy Hospital, Kansas City, Mo
403 University of Kansas Medical Center, Kansas City, Kan
404 Children's Seashore Home, Betty Bacharach Home Clyde Fish Memorial Hospital Atlantic City Municipal Hospital
405 Veterans Administration Mental Hygiene Clinic, Newark, N J Trenton State Hospital, Menlo Park Diagnostic Center Child Guidance Clinic of Orange and Maplewood East Orange N J
406 New Jersey Diagnostic Center, Menlo Park, N J Vineland State School, Vineland, N J New Jersey Neuro Psychiatric Institute, Skillman N J , Arthur Brisbane Child Treatment Center Farmingdale, N J , Central New Jersey Mental Hygiene Clinic Red Bank, N J
407 Metropolitan Hospital New York City
408 Glen Gardner Sanatorium
409 A N Brady Memorial Hospital, Albany, N Y
410 Veterans Administration Hospital Albany, N Y
411 St Peter's Hospital Albany N Y
412 Syracuse Psychopathic Hospital, Syracuse, N Y
413 Veterans Administration Hospital, Millard Fillmore Hospital Children's Hospital, Buffalo
414 Buffalo General Hospital, Buffalo
415 Buffalo General, Edward J Meyer Memorial, Children's, and Roswell Park Memorial Hospitals
416 Bellevue Medical Center, Division III and IV, New York City
417 Ulster County Tuberculosis Hospital Ulster County Tumor Clinic Kingston City Laboratory
418 St Mark's Hospital Salt Lake City
419 French Hospital, Willard Parker Hospital, New York City
420 Morrisania City Hospital New York City
421 Grasslands Hospital Valhalla, N Y
422 Lenox Hill Hospital New York City, Letchworth Village, Thiells, N Y Jewish Board of Guardians, New York City Veterans Administration Hospital Montrose N Y
423 Letchworth Village, Thiells N Y , Neurological Institute, New York Hospital New York City
424 Babies Hospital Bellevue Hospital New York City
425 Psychiatric Institute New York City
426 Chicago Wesley Memorial Hospital, Veterans Admin Research Hospital Chicago
427 Oneida County Child Guidance Clinic (at St Luke's Hospital Utica), Syracuse Psychopathic Hospital, Syracuse N Y
428 New York State Psychiatric Institute, Neurological Institute, New York City
429 New York University Bellevue Medical Center, New York City
430 North Carolina Memorial Hospital Chapel Hill N C
431 State Hospitals at Butner and Raleigh N C Park View Hospital, Rocky Mount, N C Rutherford Hospital Rutherfordton, N C
432 Shriners Hospital for Crippled Children Shreveport, La
433 Daniel Drake Memorial Hospital, Dunham Hospital
434 Children's Hospital, Cincinnati
435 Cincinnati General Hospital Cincinnati
436 University Hospitals, Cleveland
437 Sunny Acres Cuyahoga County Tuberculosis Hospital Cleveland
438 Windsor Sanitarium, Sunny Acres, Cuyahoga County Tuberculosis Hospital, Cleveland
439 Cleveland State Hospital, Cleveland
440 Veterans Administration Hospital, Cleveland
441 Elyria Memorial Hospital Elyria, Ohio
442 City Hospital, Cleveland
443 Lakeside Hospital Cleveland
444 Columbus State Hospital Columbus State School Children's Mental Health Center, Starling Loving Mental Hygiene Clinic
445 Children's Mental Health Center Columbus Psychiatric Clinic, Columbus, Ohio
446 Children's Mental Health Center Columbus Ohio
447 Bone and Joint Hospital, Oklahoma City, Western State Hospital Fort Supply, Okla
448 To include one year of training at Emory University Hospital Emory University Ga
449 Cook County Hospital Michael Reese Hospital, St Luke's Hospital Veterans Admin Research Hospital, Chicago
450 Western Psychiatric Institute and Clinic, Pittsburgh
451 Pittsburgh Medical Center, Pittsburgh
452 St Christopher's Hospital, Philadelphia
453 Temple University Hospital Philadelphia
454 Albert Einstein Medical Center—Northern Division, Philadelphia Albert Einstein Medical Center—Southern Division Philadelphia
455 Philadelphia General Hospital—Northern Division, Philadelphia
456 Buffalo General Hospital, Buffalo
457 Newport Hospital, Newport, R I
460 John Gaston Hospital Hospital for Crippled Adults, Crippled Children's Hospital School, Memphis, Tenn
463 Texas Scottish Rite Hospital, Parkland Hospital, Dallas Texas
464 Baylor University Hospital Texas Children's Hospital, Dallas, Texas
466 University of Texas Medical Branch Hospitals Galveston, Texas
467 Houston Eye, Ear, Nose and Throat Hospital, Houston, Texas
468 Brackenridge Hospital Austin, Texas
470 Methodist Hospital, Houston, Texas
471 Methodist Hospital Jefferson Davis Hospital, Houston Texas
472 Gulf, Colorado and Santa Fe Association Hospital Temple Texas
473 Dr W H Groves Latter Day Saints Hospital, Holy Cross Hospital, Salt Lake City Thomas D Dee Memorial Hospital, Ogden, Utah
475 Veterans Administration Hospital Salt Lake City
479 Alfred I DuPont Institute of the Nemours Foundation, Wilmington, Del
480 Jefferson Davis Hospital, University of Texas M D Anderson Hospital for Cancer Research, Veterans Administration Hospital Houston, Texas
491 Veterans Administration Hospital, Madison, Wis , Mendota State Hospital, Mendota, Wis
492 State of Wisconsin General Hospital Madison, Wis
493 South View Hospital Milwaukee
494 Veterans Administration Hospital, Seattle
496 Beth Israel Hospital, New York City
497 Veterans Administration Hospital, Minneapolis
498 Veterans Administration Hospital San Francisco
499 Veterans Administration Hospital, Hines, Ill

HOSPITALS APPROVED FOR RESIDENCY TRAINING

Number of Hospitals 1,186, Number of Programs, 4,844

Name of Hospital	Location	Approved Residencies
Birmingham Baptist Hospital ★	Birmingham Ala	Path
Carraway Methodist Hospital ★	Birmingham Ala	Int Med Obst Surg Urol.
Children's Hospital	Birmingham Ala	Ped
Jefferson Hillman Hospital ★	Birmingham Ala	Anes Derm Syph Int Med Neuro Surg Ob-Gyn Ophth Otol. Ortho Surg Path Ped Psych Rad Surg Urol.
Veterans Admin Hospital	Birmingham Ala	Int Med Urol
Lloyd Noland Hospital ★	Fairfield Ala	Anes Derm Syph. Int Med Obst Ortho Surg Path Ped. Surg Urol.
City Hospital ★	Mobile Ala	Int Med Ortho Surg Path Ped Surg
Veterans Admin Hospital	Tuskegee Ala	Int Med Ophth Psych Rad Surg
Good Samaritan Hospital ★	Phoenix Ariz	Ob-Gyn
Maricopa County General Hospital ★	Phoenix Ariz.	Gen'l Pract Ob-Gyn., Ped Surg
Memorial Hospital ★	Phoenix Ariz	Path Rad
St Joseph's Hospital ★	Phoenix Ariz	Ob Gyn Surg
St Mary's Hospital and Sanatorium ★	Tucson Ariz	Gen'l Pract Int Med Surg
Tucson Medical Center ★	Tucson Ariz	Int Med. Surg
Army Navy General Hospital	Hot Springs Ark	Surg
Arkansas Baptist Hospital ★	Little Rock Ark	Int Med Ophth Surg
Arkansas Children's Home and Hospital	Little Rock Ark	Ortho Surg
Arkansas State Hospital	Little Rock Ark	Psych
St Vincent Infirmary ★	Little Rock Ark	Anes
University Hospital ★	Little Rock Ark	Anes Int Med Ob-Gyn Path Ped Rad Surg Urol.
Veterans Admin Hospital ★	Little Rock Ark	Int Med Otol., Surg
Veterans Admin Hospital	North Little Rock Ark	Psych
St Michael's Hospital	Texarkana Ark	Gen'l Pract
Agnews State Hospital	Agnew Calif	Psych
General Hospital of Riverside County ★	Arlington Calif	Gen'l Pract Int Med Surg
Kern General Hospital ★	Bakersfield Cal	Gen'l Pract Int Med Path Ped., Rad., Surg Urol
Herrick Memorial Hospital ★	Berkeley Calif	Int Med Ob-Gyn., Path Psych., Rad., Surg
Camarillo State Hospital	Camarillo Calif	Psych
Compton Sanitarium	Compton, Calif	Psych
City of Hope	Duarte Calif	Mal Dis Pul Dis
San Joaquin General Hospital ★	French Camp Calif	Int Med Ob-Gyn Ped Rad Surg
General Hospital of Fresno County ★	Fresno Calif	Int Med Ophth Ped Rad Surg
Glendale Sanitarium and Hospital ★	Glendale Calif	Int Med. Ob-Gyn. Path Surg
Napa State Hospital	Imola Calif	Psych
Arroyo Del Valle Sanatorium	Livermore Calif	Pul Dis
Loma Linda Sanitarium and Hospital ★	Loma Linda Calif	Path
Seaside Memorial Hospital ★	Long Beach Calif	Int Med Ob-Gyn Path Ped Rad Surg
Veterans Admin. Hospital ★	Long Beach Calif	Allergy Card Dis Derm Syph Gastro Int Med Neur Ophth Otol., Ortho Surg Path Psych Pul Dis Rad Surg Thor Surg Urol.
Barlow Sanatorium	Los Angeles	Pul. Dis
California Babies and Children's Hospital	Los Angeles	Ped
California Hospital ★	Los Angeles	Int Med Obst Path Surg
Cedars of Lebanon Hospital ★	Los Angeles	Int Med Path., Rad Surg
Children's Hospital ★	Los Angeles	Ortho Surg Path Ped
Eye and Ear Hospital	Los Angeles	Ophth Otol.
Hospital of the Good Samaritan ★	Los Angeles	Int Med. Ob-Gyn Path Rad Surg
Los Angeles County General Hospital ★	Los Angeles	Anes Derm Syph. Gen'l Pract Int Med Neur Neuro Surg Ob Gyn Ophth Otol. Ortho Surg., Path Ped Phys Med Psych Rad Surg Urol.
Methodist Hospital of Southern California ★	Los Angeles	Gen'l Pract
Orthopedic Hospital	Los Angeles	Otho Surg
Presbyterian Hospital Olmsted Memorial ★	Los Angeles	Int Med Mal. Dis Ob Gyn Rad Surg., Urol.
Queen of Angels Hospital ★	Los Angeles	Int Med Ob-Gyn Path Ped Rad Surg
St Vincent's Hospital ★	Los Angeles	Int Med., Path Surg
Santa Fe Coast Lines Hospital ★	Los Angeles	Surg
Veterans Admin Hospital ★	Los Angeles	Anes Derm Syph Gastro., Int Med Neur., Ophth Otol Ortho Surg., Path Plas Surg Proct Psych., Rad., Surg Thor Surg Urol
White Memorial Hospital ★	Los Angeles	Anes Derm Syph Int Med Neur Neuro Surg Ob-Gyn Ophth., Otol. Ortho Surg Path. Ped. Phys Med Proct Rad., Surg., Urol
Contra Costa County Hospital	Martinez Calif	Gen'l Pract
Bret Harte Sanatorium	Murphys Calif	Pul Dis
Norwalk State Hospital	Norwalk Calif	Psych
Children's Hospital of the East Bay	Oakland Calif	Ped
Highland Alameda County Hospital ★	Oakland Calif	Anes Int Med., Ob-Gyn Ophth Ortho Surg Path., Ped Rad Surg Thor Surg
Peralta Hospital	Oakland Calif	Surg
Kaiser Foundation Hospital ★	Oakland Calif	Int Med Ob-Gyn Path Ped Surg
Samuel Merritt Hospital	Oakland Calif	Anes Int Med Ortho Surg Surg
U S Naval Hospital ★	Oakland Calif	Anes Int Med Ob-Gyn Ophth Otol. Ortho Surg Path., Ped Psych Rad Surg Urol.
Veterans Admin Hospital	Palo Alto Calif	Psych
Collis P and Howard Huntington Memorial Hosp ★	Pasadena Calif	Int Med Mal. Dis., Neuro Surg Ob-Gyn., Path Rad., Surg
Patton State Hospital	Patton Calif	Psych
Sequoia Hospital	Redwood City Calif	Gen'l Pract
Sacramento County Hospital ★	Sacramento Calif	Gen'l Pract Path
Sutter General Hospital	Sacramento Calif	Rad
Monterey County Hospital	Salinas Calif	Gen'l Pract
San Bernardino County Charity Hospital ★	San Bernardino Calif	Int Med Path Surg
Mercy Hospital ★	San Diego Calif	Int. Med. Ob-Gyn. Path. Surg
San Diego County General Hospital ★	San Diego Calif	Int Med Ob-Gyn., Ophth Ortho Surg., Path Ped Pul Dis Rad Surg Urol.
U S Naval Hospital ★	San Diego Calif	Derm Syph Gen'l Pract., Int Med., Ob-Gyn Ophth. Otol., Ortho Surg Path Rad Surg Urol
Children's Hospital ★	San Francisco	Con Dis Int Med Ob-Gyn. Otol., Ortho Surg Ped., Rad Surg
Franklin Hospital ★	San Francisco	Int Med Neuro Surg., Ortho Surg Path Plas Surg Surg Urol
French Hospital ★	San Francisco	Int Med., Path. Surg
Green's Eye Hospital	San Francisco	Ophth
Langley Porter Clinic Hospital	San Francisco	Psych.
Letterman Army Hospital ★	San Francisco	Anes Card Dis Derm Syph., Gastro., Int Med., Neur., Ob-Gyn., Ophth., Otol Ortho Surg Path Ped Phys Med., Psych Rad Surg Urol
Mary's Help Hospital ★	San Francisco	Int. Med Ob-Gyn Surg
Mount Zion Hospital ★	San Francisco	Int Med., Path., Ped Psych Rad Surg
St Francis Memorial Hospital	San Francisco	Anes., Gen'l Pract., Ob-Gyn Path., Plas Surg., Rad
St Joseph's Hospital ★	San Francisco	Anes., Int Med., Ob-Gyn Ortho Surg., Surg
St Luke's Hospital ★	San Francisco	Int Med Ob-Gyn Path Surg
St Mary's Hospital ★	San Francisco	Int Med., Obst., Ortho Surg., Ped. Rad Surg

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★ Indicates hospitals approved for training interns

Name of Hospital	Location	Approved Residencies
San Francisco Hospital ★		
Stanford University Service	San Francisco	Int Med, Ob Gyn, Otol, Ortho Surg, Path, Ped, Pul Dis, Rad, Surg
University of California Service	San Francisco	Int Med, Ob Gyn, Otol, Ortho Surg, Path, Ped, Pul Dis, Rad, Surg
Shriners Hospital for Crippled Children	San Francisco	Ortho Surg
Southern Pacific General Hospital ★	San Francisco	Int Med, Surg, Urol
Stanford University Hospital ★	San Francisco	Anes, Derm Syph, Int Med, Ob Gyn, Ophth, Otol, Ortho Surg., Path, Ped, Psych, Rad, Surg, Urol.
U S Public Health Service Hospital ★	San Francisco	Int Med, Surg
University of California Hospital ★	San Francisco	Anes, Derm Syph, Int Med Neur, Neuro Surg Ob Gyn, Ophth, Otol, Ortho Surg Path, Ped Rad, Surg Urol
Veterans Admin Hospital	San Francisco	Int Med, Neur, Ophth Otol Ortho Surg Path Rad, Surg, Urol
Santa Clara County Hospital ★	San Jose, Calif	Anes, Int Med, Ob Gyn, Ortho Surg, Path, Pul Dis, Rad, Surg, Urol
Fairmont Hospital of Alameda County	San Leandro Calif	Pul Dis
Community Hospital of San Mateo County	San Mateo, Calif	Gen'l Pract Int Med, Surg
Santa Barbara Cottage Hospital ★	Santa Barbara, Calif	Int Med, Path, Surg
Santa Barbara General Hospital	Santa Barbara Calif	Surg
St John's Hospital ★	Santa Monica, Calif	Ob Gyn, Ped, Rad, Surg
Santa Monica Hospital ★	Santa Monica, Calif	Rad
Sonoma County Hospital	Santa Rosa Calif	Gen'l Pract, Ortho Surg
Pacific Colony (State Hospital)	Spadra Calif	Psych
Tulare Kings Counties Joint Tuberculosis Hospital	Springville Calif	Pul Dis
Harbor General Hospital ★	Torrance Calif	Int Med, Ob Gyn, Ophth, Path, Ped, Rad, Surg, Thor Surg, Urol
Tulare County General Hospital	Tulare, Calif	Gen'l Pract
Glockner Penrose Hospital ★	Colorado Springs, Colo	Gen'l Pract, Int Med, Path, Rad
St Francis Hospital	Colorado Springs, Colo	Gen'l Pract, Rad
Children's Hospital	Denver	Ortho Surg, Path, Ped, Surg
Fitzsimons Army Hospital ★	Denver	Anes, Card Dis Int Med Neur, Ob Gyn, Ortho Surg Path, Ped., Phys Med, Psych, Pul Dis, Rad, Surg, Thor Surg, Urol
General Rose Memorial Hospital ★	Denver	Path Rad
Mercy Hospital ★	Denver	Int Med
National Jewish Hospital	Denver	Pul Dis, Thor Surg
Presbyterian Hospital ★	Denver	Int Med, Ob Gyn, Path, Rad, Surg
St Anthony Hospital ★	Denver	Int Med, Surg
St Joseph's Hospital ★	Denver	Int Med Ob Gyn, Path, Rad, Surg
St Luke's Hospital ★	Denver	Int Med, Path, Rad, Surg
University of Colorado Medical Center		
Colorado General Hospital ★	Denver	Anes Derm Syph, Gen'l Pract, Int Med, Neur, Ob Gyn, Ophth, Otol, Ortho Surg, Path, Ped, Phys Med, Rad, Surg, Urol
Colorado Psychopathic Hospital	Denver	Psych
Denver General Hospital ★	Denver	Anes, Gen'l Pract, Int Med, Ob Gyn, Otol, Ortho Surg, Path, Ped, Rad, Surg, Urol
Veterans Admin Hospital	Denver	Int Med, Neur, Ortho Surg, Path, Phys Med, Psych, Rad, Surg
Colorado State Hospital	Pueblo, Colo	Int Med, Path, Psych, Surg
Corwin Hospital	Pueblo Colo	Int Med, Surg
Bridgeport Hospital ★	Bridgeport, Conn	Anes, Int Med, Obst, Path, Rad, Surg
St Vincent's Hospital ★	Bridgeport Conn	Int Med, Obst Surg
Greenwich Hospital ★	Greenwich Conn	Gen'l Pract, Int Med, Path, Surg
Hartford Hospital ★	Hartford Conn	Anes, Int Med, Neuro Surg, Ob Gyn, Ortho Surg, Path, Ped., Rad, Surg
Institute of Living	Hartford Conn	Psych
J I McCook Memorial Hospital ★	Hartford, Conn	Int Med Surg
St Francis Hospital ★	Hartford Conn	Anes, Int Med, Neuro Surg, Ob Gyn, Path, Ped, Surg
Meriden Hospital ★	Meriden Conn	Surg
Connecticut State Hospital	Middletown Conn	Psych
Middlesex Hospital ★	Middletown Conn	Path
New Britain General Hospital ★	New Britain Conn	Int Med, Ob Gyn, Path, Surg
Silver Hill Foundation	New Canaan Conn	Psych
Grace New Haven Community Hospital ★	New Haven, Conn	Anes, Int Med Neuro Surg, Ob Gyn, Ophth, Otol, Ortho Surg, Path Ped, Psych Rad Surg, Thor Surg, Urol
Hospital of St Raphael ★	New Haven, Conn	Anes, Int Med, Ob Gyn, Ortho Surg, Path, Ped, Rad, Surg, Urol
Cedarcrest Hospital	Newington Conn	Thor Surg
Newington Home and Hospital for Crippled Children	Newington, Conn	Ortho Surg
Lawrence and Memorial Associated Hospitals ★	New London, Conn	Int Med, Ob Gyn, Surg
Fairfield State Hospital	Newtown, Conn	Psych
Norwalk Hospital ★	Norwalk, Conn	Int Med, Obst, Path, Surg
Norwich State Hospital	Norwich Conn	Psych
Norwich State Tuberculosis Sanatorium	Norwich, Conn	Pul Dis, Thor Surg
State of Connecticut Veterans Home and Hospital	Rocky Hill Conn	Phys Med
Laurel Heights State Tuberculosis Sanatorium	Shelton Conn	Pul Dis
Stamford Hospital ★	Stamford, Conn	Path
Charlotte Hungerford Hospital	Torrington, Conn	Gen'l Pract
St Mary's Hospital ★	Waterbury, Conn	Int Med, Path, Rad, Surg
Waterbury Hospital ★	Waterbury, Conn	Int Med, Path, Ped, Rad, Surg, Urol
Veterans Admin Hospital	West Haven Conn	Int Med, Path, Psych, Rad, Surg, Urol
Delaware State Hospital	Farnhurst, Del	Psych
Alfred I duPont Institute of Nemours Foundation	Wilmington Del	Ortho Surg
Delaware Hospital ★	Wilmington, Del	Int Med, Ob Gyn, Path, Ped, Rad, Surg, Urol
Memorial Hospital ★	Wilmington, Del	Int Med, Path Surg
Wilmington General Hospital ★	Wilmington, Del	Gen'l Pract, Int Med, Path
Armed Forces Institute of Pathology	Washington, D C	Path
Army Medical Center ★	Washington, D C	Allergy, Anes, Card Dis, Derm Syph, Int. Med Neur, Neuro Surg, Ob Gyn, Ophth, Otol Ortho Surg, Path Ped, Phys Med, Psych, Rad, Surg Thor Surg, Urol
Central Dispensary and Emergency Hospital ★	Washington, D C	Int Med Rad, Surg
Children's Hospital	Washington, D C	Path, Ped
Columbia Hospital for Women and Lying In Asylum	Washington, D C	Ob Gyn
District of Columbia General Hospital ★	Washington, D C	Int Med, Neur, Ob Gyn, Ophth, Otol, Ortho Surg, Path, Ped, Phys Med, Psych, Pul Dis, Rad Surg Urol.
Doctors Hospital ★	Washington, D C	Anes, Int Med, Ob Gyn, Path, Rad, Surg
Eastern Dispensary and Casualty Hospital	Washington, D C	Gen'l Pract
Episcopal Eye, Ear, and Throat Hospital	Washington, D C	Ophth, Otol
Freedmen's Hospital ★	Washington, D C	Derm Syph Int Med, Neur, Ob Gyn, Ophth, Ortho Surg, Ped., Pul Dis, Rad, Surg Urol
Garfield Memorial Hospital ★	Washington, D C	Anes, Int Med, Ob Gyn, Path Rad, Surg
Georgetown University Hospital	Washington, D C	Anes, Derm Syph, Int Med, Neur, Ob Gyn, Path, Ped, Psych, Rad, Surg
George Washington University Hospital ★	Washington, D C	Anes Card Dis, Int Med, Neur, Ob Gyn, Path, Phys Med, Psych, Rad, Thor Surg, Surg
Providence Hospital ★	Washington D C	Int Med, Ob Gyn, Path, Ped, Surg
St Elizabeth's Hospital ★	Washington D C	Neur Psych, Surg
Sibley Memorial Hospital ★	Washington, D C	Ob-Gyn, Path, Surg
Tuberculosis Sanatorium (Glendale, Md)	Washington, D C	Pul Dis
Veterans Admin Hospital	Washington D C	Int Med, Neur, Otol, Path, Rad, Surg, Urol
Veterans Admin Hospital	Coral Gables, Fla	Int Med, Path, Surg
Halifax District Hospital	Daytona Beach, Fla	Gen'l Pract

★ Indicates hospitals approved for training interns

Name of Hospital	Location	Approved Residencies
Duval Medical Center ★	Jacksonville Fla	Int Med Ob-Gyn Ped Psych Rad., Surg Urol.
Hope Haven Hospital	Jacksonville Fla	Ortho Surg
Riverside Hospital	Jacksonville Fla	Anes Int Med., Surg
St Luke's Hospital ★	Jacksonville Fla	Gen'l Pract Int Med Obst Rad Surg
St. Vincent's Hospital ★	Jacksonville Fla	Gen'l Pract., Int Med., Ob Gyn Path Ped., Surg Urol
Jackson Memorial Hospital ★	Miami	Anes Int Med Ob-Gyn Ophth Ortho Surg Path Ped Psych., Rad Surg Urol
Mount Sinai Hospital ★	Miami Beach Fla	Int Med Ob-Gyn Path Rad Surg
St Francis Hospital ★	Miami Beach Fla	Int Med Path., Surg
Orange Memorial Hospital ★	Orlando Fla	Int Med Obst Surg Urol.
Sacred Heart Hospital ★	Pensacola Fla	Gen'l Pract
American Legion Hospital for Crippled Children	St Petersburg Fla	Ortho Surg
Mound Park Hospital ★	St Petersburg Fla	Ob-Gyn., Surg
Tampa Municipal Hospital ★	Tampa Fla	Int Med., Ob-Gyn Otol Surg
Crawford W Long Memorial Hospital ★	Atlanta Ga	Int Med., Ob Gyn Ortho Surg., Path Ped., Rad Surg
Georgia Baptist Hospital ★	Atlanta Ga	Int Med Ob-Gyn Path Rad Surg
Grady Memorial Hospital ★	Atlanta Ga	Gen'l Pract Int Med Ob-Gyn., Ophth Otol., Path., Ped Psych Rad Surg Urol
Henrietta Egleston Hospital for Children	Atlanta Ga	Ped
Piedmont Hospital ★	Atlanta Ga	Int Med Ob-Gyn Path Rad Surg
St Joseph's Infirmary ★	Atlanta Ga	Int Med Ob-Gyn Surg
Veterans Admin Hospital ★	Atlanta Ga	Anes Int Med. Ophth Otol. Path., Rad Surg Urol.
University Hospital ★	Augusta Ga	Anes Int Med Ob-Gyn Ortho Surg Path., Ped. Psych Rad., Surg., Thor Surg Urol
Veterans Admin Hospital	Augusta Ga	Int Med Psych., Rad. Surg
Columbus City Hospital ★	Columbus Ga	Gen'l Pract
Scottish Rite Hospital for Crippled Children	Decatur Ga	Ortho Surg
Emory University Hospital ★	Emory University Ga	Int Med Neuro Surg Ortho Surg Path., Rad Surg
U S Army Hospital	Fort Benning Ga	Surg
Macon Hospital ★	Macon Ga	Gen'l Pract
Georgia Warm Springs Foundation	Warm Springs Ga	Phys Med
St Joseph's Hospital	Alton Ill	Gen'l Pract
U S Air Force Hospital	Belleville (Scott Air Force Base) Ill	Int Med. Surg
MacNeal Memorial Hospital ★	Berwyn Ill	Gen'l Pract Surg
Alexian Brothers Hospital ★	Chicago	Int Med Ortho Surg Path., Urol.
American Hospital ★	Chicago	Anes Surg
Augustana Hospital ★	Chicago	Int Med Obst Path Rad Surg
Chicago Eye Ear Nose and Throat Hospital	Chicago	Ophth
Chicago Maternity Center	Chicago	Obst
Chicago State Hospital	Chicago	Psych
Chicago Wesley Memorial Hospital ★	Chicago	Anes., Int Med Neuro Surg Ob-Gyn Ophth Otol. Ortho Surg Path Psych Rad Surg Urol
Children's Memorial Hospital	Chicago	Ortho Surg Path Ped Surg Thor Surg
City of Chicago Municipal Tuberculosis Sanatorium	Chicago	Pul. Dis Thor Surg
Columbus Hospital ★	Chicago	Int Med
Cook County Hospital ★	Chicago	Anes Con Dis Derm. Syph., Int Med Neur., Ob-Gyn Ophth Otol Ortho Surg Path., Ped Psych Rad Surg., Urol.
Englewood Hospital ★	Chicago	Int Med Obst Path Rad Surg
Frank Cuneo Memorial Hospital	Chicago	Ob-Gyn
Grant Hospital ★	Chicago	Anes., Gen'l Pract Int Med Ob-Gyn., Path Rad Surg
Henrotin Hospital ★	Chicago	Int Med Obst Surg
Hospital of St Anthony de Padua ★	Chicago	Int Med Obst. Surg
Illinois Central Hospital ★	Chicago	Int Med., Rad., Surg
Illinois Eye and Ear Infirmary	Chicago	Ophth., Otol
Illinois Masonic Hospital ★	Chicago	Gen'l Pract Int Med Ob-Gyn Ortho Surg., Path Ped., Rad Surg
Lewis Memorial Maternity Hospital	Chicago	Ob-Gyn
Loretto Hospital ★	Chicago	Int Med Obst Psych
Lutheran Deaconess Home and Hospital ★	Chicago	Int Med., Obst Surg
Mercy Hospital ★	Chicago	Int Med Neuro Surg Ob-Gyn Ophth Path Ped Psych. Rad. Surg Urol.
Michael Reese Hospital ★	Chicago	Anes Card Dis Derm Syph Gastro., Int Med Mal Dis Ob-Gyn Ophth Ortho Surg., Path Ped Phys Med Psych., Rad Surg Urol.
Mount Sinai Hospital ★	Chicago	Anes., Int Med., Ob-Gyn., Path Ped., Rad., Surg Urol.
Municipal Contagious Disease Hospital	Chicago	Con Dis
Northwestern University Medical Center	Chicago	Allergy Derm Syph Neuro Neuro Surg Phys Med Psych
Norwegian American Hospital ★	Chicago	Int Med. Path., Surg
Passavant Memorial Hospital ★	Chicago	Int Med Neuro Surg., Ob-Gyn., Ophth., Ortho Surg Path Rad., Surg
Presbyterian Hospital ★	Chicago	Anes Int Med Ob-Gyn Ophth Otol., Path. Ped., Rad., Surg Urol
Provident Hospital ★	Chicago	Int Med Ob-Gyn., Ophth Path Ped., Rad. Surg., Urol.
Ravenswood Hospital ★	Chicago	Int Med Ob-Gyn Path., Rad Surg
St Anne's Hospital ★	Chicago	Int Med Obst Rad., Surg
St Bernard's Hospital ★	Chicago	Rad
St Elizabeth Hospital ★	Chicago	Ob-Gyn Ortho Surg
St. Joseph Hospital ★	Chicago	Int Med Ob-Gyn., Ophth., Path Ped., Surg
St Luke's Hospital ★	Chicago	Ane Int Med Neur Neuro Surg Ob-Gyn Ophth., Ortho Surg Path Ped Psych. Rad Surg., Urol
St. Mary of Nazareth Hospital ★	Chicago	Gen'l Pract Int. Med Ob-Gyn Path Surg
Shriners Hospital for Crippled Children	Chicago	Ortho Surg
South Shore Hospital ★	Chicago	Gen'l Pract.
Swedish Covenant Hospital ★	Chicago	Obst
University of Chicago Clinics ★	Chicago	Anes Derm. Syph Int Med Neur Neuro Surg Ob-Gyn Ophth., Otol Ortho Surg Path Ped Psych Rad., Surg Urol
University of Illinois Neuropsychiatric Institute	Chicago	Neur Neuro Surg Psych
University of Illinois Research and Educational Hospitals ★	Chicago	Allergy Anes., Derm. Syph Int Med Neur., Neuro Surg., Ob-Gyn Ophth. Otol Ortho Surg., Path., Ped., Phy Med., Psych Rad Surg
Veterans Admin Research Hospital	Chicago	Int Med Ophth. Phys Med., Surg
Veterans Admin (West Side) Hospital	Chicago	Int Med., Surg
Women and Children's Hospital ★	Chicago	Int Med. Ob-Gyn Surg
Woodlawn Hospital ★	Chicago	Int Med Ophth Surg
Decatur & Macon County Hospital ★	Decatur Ill	Gen'l Pract Urol.
Dixon State Hospital	Dixon Ill	Psych
Veterans Admin Hospital	Downey Ill	Psych
Elgin State Hospital	Elgin Ill	Psych
Evanston Hospital ★	Evanston Ill	Anes Int Med. Ob-Gyn Ophth Ortho Surg Path Ped., Rad Surg Urol.
St Francis Hospital ★	Evanston Ill	Int Med Ob-Gyn Ortho Surg Path Ped Rad Surg., Urol.
Little Company of Mary Hospital ★	Evergreen Park Ill	Int Med., Ob-Gyn., Ped., Rad. Surg
U S Naval Hospital ★	Great Lakes Ill.	Int Med., Ob-Gyn Psych., Surg
Veterans Admin Hospital	Hines Ill	Anes., Card Dis., Derm. Syph., Int Med Mal. Dis., Neur., Neuro Surg., Ophth., Otol Ortho Surg Path. Phys Med., Plas Surg., Psych., Rad., Surg Thor Surg., Urol.
Jacksonville State Hospital	Jacksonville Ill.	Psych
St Joseph's Hospital ★	Joliet Ill	Anes
Manteno State Hospital	Manteno Ill	Psych

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Name of Hospital	Location	Approved Residencies
West Suburban Hospital *	Oak Park, Ill	Int Med, Ob Gyn, *Ortho Surg*, Ped, Surg
Methodist Hospital of Central Illinois *	Peoria, Ill	Gen'l Pract, Obst, Path, Surg
Peoria Municipal Tuberculosis Sanitarium	Peoria, Ill	Pul Dis
St Francis Hospital *	Peoria, Ill	Int Med, Ob Gyn, Ortho Surg, Path, Ped, Rad, Surg, Urol
U S Air Force Hospital	Rantoul Ill	Surg
Rockford Municipal Tuberculosis Sanatorium	Rockford, Ill	Pul Dis
St Anthony's Hospital *	Rockford, Ill	Path
Swedish American Hospital *	Rockford, Ill	Gen'l Pract, Rad
Lake County Tuberculosis Sanatorium	Waukegan, Ill	Pul Dis
North Shore Health Resort	Winnetka Ill	Psych
St Francis Hospital	Beech Grove Ind	Gen'l Pract
Clinic Hospital	Bluffton Ind	Int Med, Rad, Surg
Protestant Deaconess Hospital *	Evansville Ind	Rad
St Joseph's Hospital *	Fort Wayne, Ind	Path, Rad
Methodist Hospital *	Gary, Ind	Gen'l Pract
St Margaret's Hospital *	Hammond Ind	Gen'l Pract, Rad
Central State Hospital	Indianapolis	Psych
Indianapolis General Hospital *	Indianapolis	Anes Card Dis Derm Syph, Int Med, Neur, Ob Gyn, Ophth, Otol, Ortho Surg Path, Ped, Psych, Pul Dis, Rad, Surg, Urol
Indiana University Medical Center *	Indianapolis	Anes Card Dis, Int Med, *Neur*, *Neuro* Surg, Ob Gyn, Ophth, *Otol* Ortho Surg, Path Ped, Plas Surg, Psych Rad, Surg, Urol
Methodist Hospital *	Indianapolis	Gen'l Pract, Int Med, Neur, Obst, Ortho Surg, Path, Rad, Surg, Urol
Norways Foundation Hospital	Indianapolis	Psych
St Vincent's Hospital *	Indianapolis	Int Med Ob Gyn, Ortho, Path, Ped, Surg
Sunnyside Sanatorium	Indianapolis	Pul Dis
Veterans Admin Hospital	Indianapolis	Int Med Ortho Surg, Path, Psych Rad Surg
St Elizabeth Hospital *	Lafayette Ind	Gen'l Pract, Int Med, Ob Gyn, Path, Rad, Surg
Logansport State Hospital	Logansport Ind	Psych
Ball Memorial Hospital *	Muncie Ind	Int Med, Path, Rad, Surg
Healthwin Hospital	South Bend Ind	Pul Dis
Memorial Hospital *	South Bend, Ind	Anes Gen'l Prac, Path
St Luke's Methodist Hospital *	Cedar Rapids, Iowa	Gen'l Pract
Mental Health Institute	Cherokee Iowa	Psych
Broadlawns Polk County Hospital *	Des Moines Iowa	Gen'l Pract, Surg
Iowa Methodist Hospital *	Des Moines Iowa	Int Med, Ortho Surg, Path, Ped, Rad, Surg
Mercy Hospital *	Des Moines Iowa	Path
Veterans Admin Hospital	Des Moines, Iowa	Anes, Int Med, Ortho Surg Path, Rad, Surg, Urol
Mental Health Institute	Independence, Iowa	Psych
Iowa State Psychopathic Hospital	Iowa City	Psych
Mercy Hospital *	Iowa City	Ortho Surg, Surg
University Hospitals *	Iowa City	Anes, Derm Syph Gen'l Pract Int Med, Neur Neuro Surg, Ob Gyn, Ophth, Otol, Ortho Surg, Path, Ped, Rad, Surg, Urol
Veterans Admin Hospital	Iowa City	Anes, Int Med, *Path*, Rad, Surg
Halstead Hospital	Halstead Kan	Int Med, Psych, Surg
St Margaret's Hospital *	Kansas City, Kan	Surg
University of Kansas Medical Center *	Kansas City, Kan	Anes, Derm Syph, Int Med, Neur, Ob Gyn Ophth, Otol, Ortho Surg, Path, Ped, Phys Med, Plas Surg, Psych, Rad, Surg, Urol
Menninger Sanitarium	Topeka, Kan	Psych
Topeka State Hospital	Topeka Kan	Psych
Veterans Admin Hospital	Topeka Kan	Int Med, Neur Path Psych
Veterans Admin Hospital	Wadsworth, Kan	Int Med, Ophth, Otol, Ortho Surg Path, Phys Med, Rad, Surg, Urol
rancis Hospital *	Wichita Kan	Gen'l Pract Int Med, Ob Gyn, Ortho Surg, Path, Rad Surg
ns Admin Hospital	Wichita, Kan	Int Med Surg
Hospital *	Wichita Kan	Gen'l Pract, Int Med, Ob Gyn, Rad, Surg
Army Hospital	Fort Campbell, Ky	Surg
S Army Hospital	Fort Knox, Ky	Surg
Central State Hospital	Lakeland Ky	Psych
Good Samaritan Hospital *	Lexington Ky	Int Med, Ortho Surg, Surg
St Joseph Hospital *	Lexington, Ky	Int Med, Ob Gyn Ortho Surg, Surg, Urol
U S Public Health Service Hospital	Lexington, Ky	Psych
Veterans Admin Hospital	Lexington Ky	Psych
Children's Hospital	Louisville, Ky	Ped
Kentucky Baptist Hospital *	Louisville, Ky	Int Med
Kosair Crippled Children's Hospital	Louisville, Ky	Ortho Surg
Louisville General Hospital *	Louisville Ky	Anes, Int Med, Neur, Neuro Surg, Ob Gyn, Ophth, Otol, Ortho Surg, Path, Ped, Psych, Rad, Surg, Urol
Norton Memorial Infirmary *	Louisville, Ky	Psych Rad, Surg
St Joseph Infirmary *	Louisville, Ky	Int Med, Ob Gyn, Ped, Rad Surg
Veterans Admin Hospital	Louisville, Ky	Int Med Neur, Ophth, Otol, Ortho Surg, Path, Psych Rad, Surg, Urol
Baton Rouge General Hospital *	Baton Rouge La	Gen'l Pract, Path
Lafayette Charity Hospital	Lafayette La	Surg
St Patrick's Hospital	Lake Charles La	Gen'l Pract
Charity Hospital of Louisiana *	New Orleans	Anes Derm Syph, Int Med Neur, Ob Gyn Ophth, Ortho Surg, Otol, Path, Ped, Psych, Pul Dis, Rad, Surg Urol
DePaul Hospital	New Orleans	Psych
Eye Ear Nose and Throat Hospital	New Orleans	Ophth, Otol
Hotel Dieu Sisters Hospital *	New Orleans	Int Med, Ob Gyn, Path, Ped, Surg
Ochsner Foundation Hospital	New Orleans	Anes, Int Med, Neuro Surg Ob Gyn Ortho Surg, Rad, Surg, Urol
Southern Baptist Hospital *	New Orleans	Int Med, Ob Gyn, Path, Ped, Rad, Surg
Touro Infirmary *	New Orleans	Gastro, Int Med, Ob Gyn, Ophth, Ortho Surg, Path, Ped, Rad, Surg
U S Public Health Service Hospital *	New Orleans	Int Med, Ophth, Path, Rad, Surg
Veterans Admin Hospital	New Orleans	Derm Syph, Int Med, Ophth, Ortho Surg, Path, Psych, Rad, Surg, *Urol*
Confederate Memorial Hospital *	Shreveport, La	Int Med, Ob Gyn, Ortho Surg, Path, Ped, Rad, Surg, Urol
Eastern Maine General Hospital *	Bangor, Maine	Anes, Path, Rad
Central Maine Sanatorium	Fairfield, Maine	Pul Dis
Central Maine General Hospital *	Lewiston, Maine	Anes, Int Med, Path, Ped, Rad, Surg
Maine General Hospital *	Portland, Maine	Anes Int Med, Path, Rad, Surg
Baltimore City Hospitals *	Baltimore	Int Med, Neur, Obst, Ortho Surg, Path, Ped, Pul Dis, Rad Surg
Baltimore Eye Ear and Throat Charity Hospital	Baltimore	Ophth, Otol
Bon Secours Hospital *	Baltimore	Ob Gyn, Surg
Children's Hospital School	Baltimore	Ortho Surg
Church Home and Hospital *	Baltimore	Int Med, Surg
Franklin Square Hospital *	Baltimore	Int Med, Ob Gyn, Surg
Hospital for Women *	Baltimore	Int Med, Ob Gyn

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Name of Hospital	Location	Approved Residencies
James Lawrence Kernan Hospital for Crippled Children	Baltimore	Ortho Surg
Johns Hopkins Hospital ★	Baltimore	Int Med Neur Neuro Surg Ob-Gyn Ophth Otol Ortho Surg, Path Ped Plas Surg Psych Rad Surg Urol
Lutheran Hospital ★	Baltimore	Int Med Ob Gyn Surg
Maryland General Hospital ★	Baltimore	Int Med Ob-Gyn Surg
Mercy Hospital ★	Baltimore	Int Med Ob-Gyn Path Ped Rad Surg
Provident Hospital and Free Dispensary	Baltimore	Int Med Obst Surg
St Agnes Hospital ★	Baltimore	Int Med Ob Gyn Surg
St Joseph's Hospital ★	Baltimore	Int Med Ob Gyn Surg
Seton Institute	Baltimore	Psych
Sinai Hospital ★	Baltimore	Int Med Ob Gyn Path Ped Rad., Surg Urol
South Baltimore General Hospital ★	Baltimore	Int Med Obst Surg
Union Memorial Hospital ★	Baltimore	Int Med Obst Path Ped Rad Surg
U S Public Health Service Hospital ★	Baltimore	Int Med Ophth Path Rad Surg
University Hospital ★	Baltimore	Derm Syph Int Med Neuro Surg Ob-Gyn Ophth Otol Ortho Surg Ped Psych Rad Surg Thor Surg Urol
National Institutes of Health—Clinical Center	Bethesda Md	Int Med Path Psych Rad
U S Naval Hospital ★	Bethesda Md	Anes Card Dis Int Med Neur., Ob-Gyn Ophth Otol., Ortho Surg Path Ped Psych Rad Surg Urol.
Spring Grove State Hospital	Catonsville Md	Psych
Veterans Admin Hospital	Fort Howard Md	Derm Syph Int Med Ophth Ortho Surg Path Phys Med Rad Surg Urol
Washington County Hospital	Hagerstown Md	Rad
Veterans Admin. Hospital	Perry Point Md	Int Med., Psych Surg
Chestnut Lodge Sanitarium	Rockville Md	Psych
Springfield State Hospital	Sykesville Md	Psych
Sheppard & Enoch Pratt Hospital	Towson Md	Psych
Veterans Admin Hospital	Bedford Mass	Psych
Beverly Hospital ★	Beverly Mass	Int Med Path Surg
Beth Israel Hospital ★	Boston	Int Med Ob Gyn Path Psych Rad., Surg Urol.
Boston City Hospital ★	Boston	Anes Derm Syph Int Med Neur Ob-Gyn., Ophth Otol., Ortho Surg Path Ped Rad Surg Urol
Boston Floating Hospital	Boston	Ped
Boston Lying In Hospital	Boston	Obst Path
Boston Psychopathic Hospital	Boston	Psych
Boston Sanatorium	Boston	Pul. Dis Thor Surg
Boston State Hospital	Boston	Psych
Carney Hospital ★	Boston	Int Med Ob Gyn Surg
Children's Medical Center ★	Boston	Ortho Surg Path Ped Rad Surg
Faulkner Hospital ★	Boston	Int Med Path Rad
Lahey Clinic	Boston	Anes Int Med Neuro Surg Ortho Surg Rad
Massachusetts Eye and Ear Infirmary	Boston	Ophth Otol
Massachusetts General Hospital ★	Boston	Allergy Anes Derm Syph Int Med Neur Neuro Surg Ortho Surg., Path Ped Phys Med Psych., Rad Surg., Urol
Massachusetts Memorial Hospitals ★	Boston	Anes Con Dis Derm Syph Gastro Int Med Ob Gyn Ophth, Ortho Surg Path Psych Rad Surg Urol
New England Center Hospital ★	Boston	Anes Int Med Neur Neuro Surg Path Psych Rad Surg Urol
New England Deaconess Hospital	Boston	Anes Int Med Path Rad
New England Hospital ★	Boston	Anes Obst
Peter Bent Brigham Hospital ★	Boston	Anes Int Med Ortho Surg Path Rad Surg Urol
St. Elizabeth Hospital ★	Boston	Anes Int Med Obst Path Psych Rad Surg
St. Margaret's Hospital	Boston	Obst
U S Public Health Service Hospital	Boston	Int Med Surg
Veterans Admin Hospital	Boston (Jamaica Plain)	Int Med., Neur Neuro Surg Otol Ortho Surg Path Phys Med Rad Surg., Urol
Veterans Admin Hospital	Boston (West Roxbury)	Phys Med Urol
Booth Memorial Hospital and Home	Brookline Mass	Obst
Free Hospital for Women	Brookline Mass	Gyn
Cambridge City Hospital ★	Cambridge Mass	Anes Int Med Ob-Gyn Rad., Surg
Mount Auburn Hospital ★	Cambridge Mass	Anes Int Med Path Rad Surg., Urol.
Massachusetts Hospital School	Canton Mass	Ortho Surg
Lawrence F Quigley Memorial Hospital	Chelsea Mass	Int Med Surg
U S Naval Hospital ★	Chelsea Mass	Gen'l Pract Int Med Ob-Gyn Ortho Surg Ped Rad Surg
Fall River General Hospital Tuberculosis Division	Fall River Mass	Pul Dis
St. Anne's Hospital	Fall River Mass	Gen'l Pract Ob-Gyn
Truesdale Hospital ★	Fall River Mass	Int Med Path Surg
Burbank Hospital	Fitchburg Mass	Path Surg
Foxboro State Hospital	Foxboro Mass	Psych
Framingham Union Hospital	Framingham Mass	Path
Danvers State Hospital	Hathorne Mass	Psych
Holyoke Hospital ★	Holyoke Mass	Path
Lawrence General Hospital ★	Lawrence Mass	Path Rad
Lowell General Hospital ★	Lowell Mass	Anes
Lynn Hospital ★	Lynn Mass	Int Med Ortho Surg Path Rad Surg
Malden Hospital	Malden Mass	Int Med Path Surg
Medfield State Hospital	Medfield Mass	Psych
St Luke's Hospital ★	New Bedford Mass	Path
Newton Wellesley Hospital ★	Newton Mass	Anes Path. Rad Surg
Cooley Dickenson Hospital	Northampton Mass	Gen'l Pract
Northampton State Hospital	Northampton Mass	Psych
Quincy City Hospital ★	Quincy Mass	Ob-Gyn Path Surg
Veterans Admin Hospital	Rutland Heights Mass	Pul Dis., Thor Surg
Salem Hospital ★	Salem Mass	Int Med Path Rad Surg Urol
Shriners Hospital for Crippled Children	Springfield Mass	Ortho Surg
Springfield Hospital ★	Springfield Mass	Int Med Path Rad Surg
Austen Riggs Foundation	Stockbridge Mass	Psych
Taunton State Hospital	Taunton Mass	Psych.
Pondville Hospital	Walpole Mass	Path Surg
Metropolitan State Hospital	Waltham Mass	Psych
Middlesex County Sanatorium	Waltham Mass	Pul Dis
McLean Hospital	Waverly Mass	Psych
Westfield State Sanatorium	Westfield Mass	Mal. Dis Pul Dis., Surg
Memorial Hospital ★	Worcester Mass	Int Med Path., Rad., Surg
St Vincent's Hospital ★	Worcester Mass	Anes Int Med Surg
Worcester City Hospital ★	Worcester Mass	Anes Con Dis Int Med Ortho Surg Path Ped Psych Pul Dis Surg
Worcester State Hospital	Worcester Mass	Psych
St Joseph Mercy Hospital ★	Ann Arbor Mich	Int Med Ob-Gyn. Path Rad Surg
University Hospital ★	Ann Arbor Mich	Allergy Derm Syph Int Med Neur Neuro Surg Ob Gyn Ophth. Otol. Ortho Surg Path Ped Phys Med Psych Rad Surg, Thor Surg Urol
American Legion Hospital	Battle Creek Mich	Pul Dis

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Name of Hospital	Location	Approved Residencies
Leila Y Post Montgomery Hospital ★	Battle Creek Mich	Int Med, Path, Rad, Surg
Veterans Admin Hospital	Battle Creek Mich	Psych
St Joseph's Retreat	Dearborn, Mich	Psych
Veterans Admin Hospital	Dearborn, Mich	Int Med, Ophth, Ortho Surg, Path, Psych, Rad, Surg, Urol.
Alexander Blain Hospital	Detroit	Int Med, Surg
Children's Hospital	Detroit	Ortho Surg, Ped, Rad
Detroit Memorial Hospital ★	Detroit	Anes, Int Med, Ob Gyn, Path, Surg
Evangelical Deaconess Hospital ★	Detroit	Int Med, Ob Gyn, Surg
Florence Crittenton Hospital	Detroit	Int Med, Ob Gyn, Surg
Grace Hospital ★	Detroit	Int Med, Neuro Surg, Ob Gyn, Path, Rad Surg, Urol
Harper Hospital ★	Detroit	Int Med, Ob Gyn, Ophth, Otol, Ortho Surg, Path, Ped, Rad, Surg, Urol
Henry Ford Hospital ★	Detroit	Anes, Card Dis, Derm Syph, Gastro Int Med, Neur, Neuro Surg, Ob Gyn, Ophth, Otol Ortho Surg, Path, Ped, Plas Surg, Psych, Pul Dis, Rad, Surg, Urol
Herman Kiefer Hospital	Detroit	Con Dis, Obst, Path, Pul Dis, Rad, Thor Surg
Jennings Memorial Hospital	Detroit	Int Med, Rad Surg
Mount Carmel Mercy Hospital ★	Detroit	Int Med, Ob Gyn, Path, Rad, Surg
Providence Hospital ★	Detroit	Anes, Int Med Ob Gyn Path Ped, Rad Surg
Receiving Hospital ★	Detroit	Anes, Derm Syph, Int Med, Gyn, Ophth, Otol, Ortho Surg, Path., Psych, Rad, Surg, Urol
St John Hospital ★	Detroit	Ob Gyn
St Joseph Mercy Hospital ★	Detroit	Int Med, Ob Gyn, Surg
Saratoga General Hospital	Detroit	Gen l Pract
Sinai Hospital ★	Detroit	Ob Gyn Rad
Woman's Hospital ★	Detroit	Int Med, Ob Gyn, Path, Surg
Wayne County General Hospital and Infirmary ★	Eloise Mich	Int Med, Ophth, Path, Psych, Rad, Surg, Urol
Hurley Hospital ★	Flint, Mich	Gen l Pract Int Med, Ob Gyn, Path, Ped, Rad, Surg
McLaren General Hospital ★	Flint, Mich	Gen'l Pract, Int Med, Surg
St Joseph Hospital ★	Flint Mich	Gen l Pract
Veterans Admin Hospital	Fort Custer Mich	Psych
Blodgett Memorial Hospital ★	Grand Rapids, Mich	Int Med, Ob Gyn Ortho Surg, Path, Rad, Surg, Urol.
Butterworth Hospital ★	Grand Rapids Mich	Anes, Int Med, Ob Gyn, Path, Rad, Surg
Ferguson Droste Ferguson Rectal Clinic and Hosp	Grand Rapids Mich	Proct
St Mary's Hospital ★	Grand Rapids Mich	Int Med, Ob Gyn, Ped, Surg
Highland Park General Hospital ★	Highland Park, Mich	Int Med, Surg
Michigan State Sanatorium	Howell Mich	Pul Dis
Borgess Hospital ★	Kalamazoo Mich	Gen l Pract Ortho Surg
Bronson Methodist Hospital ★	Kalamazoo, Mich	Int Med, Surg
Kalamazoo State Hospital	Kalamazoo Mich	Psych
Edward W Sparrow Hospital ★	Lansing, Mich	Int Med, Path, Surg
Ingham Chest Hospital	Lansing, Mich	Pul Dis, Thor Surg
St Lawrence Hospital ★	Lansing Mich	Int Med
Morgan Heights Sanatorium	Marquette, Mich	Pul Dis
Hackley Hospital	Muskegon, Mich	Rad
Mercy Hospital	Muskegon Mich	Gen l Pract
Northville State Hospital	Northville Mich	Psych
William H Maybury Sanatorium	Northville Mich	Pul Dis
Pontiac General Hospital ★	Pontiac Mich	Int Med, Ob Gyn, Surg
Pontiac State Hospital	Pontiac, Mich	Psych
St Joseph Mercy Hospital ★	Pontiac Mich	Gen l Pract, Int Med, Obst Path, Rad, Surg
Saginaw General Hospital ★	Saginaw Mich	Int Med, Ob Gyn, Occup Med, Path, Ped, Surg
St Luke's Hospital ★	Saginaw Mich	Gen l Pract
St Mary's Hospital ★	Saginaw, Mich	Gen l Pract
James Decker Munson Hospital ★	Traverse City Mich	Gen l Pract
Traverse City State Hospital	Traverse City Mich	Psych
Wyandotte General Hospital	Wyandotte Mich	Gen l Pract
Beyer Memorial Hospital	Ypsilanti Mich	Rad
Ypsilanti State Hospital	Ypsilanti Mich	Psych
St Luke's Hospital ★	Duluth Minn	Path
[illegible] Mary's Hospital ★	Duluth Minn	Int Med, Path
[illegible]ury Hospital ★	Minneapolis	Int Med, Surg
[illegible]irview Hospital	Minneapolis	Gen l Pract
Lutheran Deaconess Home and Hospital ★	Minneapolis	Gen l Pract
Minneapolis General Hospital ★	Minneapolis	Derm Syph, Int Med, Ob Gyn, Ophth, Otol, Path, Psych, Surg, Urol
Mount Sinai Hospital ★	Minneapolis	Gen l Pract, Int Med, Surg
Northwestern Hospital ★	Minneapolis	Int Med, Ob Gyn, Path, Ped, Rad, Surg
St Barnabas Hospital ★	Minneapolis	Int Med Ob Gyn, Path, Surg
St Mary's Hospital ★	Minneapolis	Ob Gyn, Urol
Shriners Hospital for Crippled Children	Minneapolis	Ortho Surg
Swedish Hospital ★	Minneapolis	Path, Rad Surg
University of Minnesota Hospitals ★	Minneapolis	Anes Derm Syph, Int Med, Neur, Neuro Surg, Ob Gyn, Ophth, Otol, Ortho Surg, Path Ped Phys Med, Proct Psych, Rad, Surg, Urol
Veterans Admin Hospital	Minneapolis	Derm Syph Int Med, Neur Ophth, Otol, Ortho Surg, Path, Psych, Pul Dis, Rad, Surg, Thor Surg, Urol
Nopeming Sanatorium	Nopeming Minn	Pul Dis
Glen Lake Sanatorium	Oak Terrace Minn	Pul Dis
Mayo Foundation	Rochester, Minn	Allergy, Anes, Derm Syph Gastro, Int Med, Neur Neuro Surg Ob Gyn, Ophth Otol Ortho Surg Path, Ped, Phys Med, Plas Surg, Proct, Psych Rad, Surg Urol
Rochester State Hospital	Rochester, Minn	Psych
Ancker Hospital ★	St Paul, Minn	Derm Syph, Int Med, Ob Gyn, Ophth, Otol, Path, Surg, Urol
Charles T Miller Hospital ★	St Paul Minn	Int Med Ob Gyn, Ophth, Path, Rad, Surg, Urol
Gillette State Hospital for Crippled Children	St Paul, Minn	Ortho Surg
Midway Hospital	St Paul, Minn	Gen'l Pract
St Joseph's Hospital ★	St Paul, Minn	Int Med, Path, Rad, Surg
Veterans Admin Hospital	Gulfport, Miss	Psych
Mississippi Baptist Hospital ★	Jackson, Miss	Ortho Surg
Mississippi State Tuberculosis Sanatorium	Sanatorium, Miss	Pul Dis
Lutheran Hospital	Vicksburg, Miss	Surg
Mercy Hospital-Street Memorial ★	Vicksburg, Miss	Gen l Pract, Surg
Mississippi State Hospital	Whitfield, Miss	Psych
St Louis County Hospital ★	Clayton, Mo	Int Med, Ob Gyn, Ophth, Path, Surg
Ellis Fischel Cancer Hospital	Columbia, Mo	Mal Dis, Surg
Veterans Admin Hospital	Excelsior Springs, Mo	Pul Dis
Veterans Admin Hospital	Jefferson Barracks, Mo	Psych
Children's Mercy Hospital	Kansas City, Mo	Ortho Surg, Ped
Kansas City General Hospital No 1 ★	Kansas City, Mo	Int Med, Ob Gyn, Ophth, Ortho Surg, Path, Ped, Psych, Rad. Surg, Urol
Kansas City General Hospital No 2 ★	Kansas City, Mo	Ob Gyn, Rad, Surg
Menorah Hospital Medical Center ★	Kansas City, Mo	Int Med, Path Rad, Surg
Research Hospital ★	Kansas City, Mo	Anes Int Med, Path, Rad, Surg, Urol
St Joseph Hospital ★	Kansas City, Mo	Int Med, Ob Gyn, Path, Rad, Surg

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★ Indicates hospitals approved for training interns

Name of Hospital	Location	Approved Residencies
St Luke's Hospital ★	Kansas City Mo	Int Med Ob Gyn Ortho Surg Path Rad Surg
St. Mary's Hospital ★	Kansas City Mo	Int Med Path Surg
Veterans Admin Hospital	Kansas City Mo	Int Med Neur Ortho Surg Path Psych., Rad
Robert Koch Hospital	Koch Mo	Pul. Dis
Missouri Methodist Hospital ★	St Joseph Mo	Gen'l Pract Surg
State Hospital No 2	St Joseph Mo	Psych
Alexian Brothers Hospital	St Louis	Gen'l Pract
Barnes Hospital ★	St Louis	Anes Derm Syph Int Med, Neur Neuro Surg Ob-Gyn Ophth. Otol., Ortho Surg Path Plas Surg Psych Rad. Surg Thor Surg Urol.
De Paul Hospital ★	St Louis	Int Med Ob-Gyn Path Rad Surg
Homer G Phillips Hospital ★	St Louis	Int Med Ob-Gyn Ophth Otol Path Ped Psych, Rad Surg Urol
Jewish Hospital ★	St Louis	Int Med Ob-Gyn Path Ped Rad Surg
Missouri Baptist Hospital ★	St Louis	Int Med, Ob Gyn Path Surg Urol.
Missouri Pacific Hospital	St Louis	Int Med Surg Urol
St Anthony's Hospital ★	St Louis	Gen'l Pract Int Med Surg
St John's Hospital ★	St Louis	Anes Int Med Obst Path Surg
St Louis Children's Hospital ★	St Louis	Otol Ped Surg
St Louis City Hospital ★	St Louis	Int Med Ob-Gyn Ophth Otol. Ortho Surg Path, Ped Psych., Rad Surg., Urol.
St Louis State Hospital	St Louis	Psych
St Luke's Hospital ★	St Louis	Int Med Ob-Gyn Rad Surg
St. Mary's Group of Hospitals ★	St Louis	Anes Derm Syph Int Med Ob-Gyn Ophth, Otol. Ortho Surg Path. Ped Psych Pul. Dis Rad Surg Urol.
Shriners Hospital for Crippled Children	St Louis	Ortho Surg
Veterans Admin Hospital	St Louis	Anes Int Med Ophth Otol. Ortho Surg Path, Rad., Surg, Thor Surg Urol
Butte Community Memorial Hospital	Butte Mont	Gen'l Pract
Montana Deaconess Hospital ★	Great Falls Mont	Int Med Path
Hastings State Hospital	Ingleside Neb	Psych
Lincoln General Hospital ★	Lincoln Neb	Ob-Gyn Path
Nebraska Orthopedic Hospital	Lincoln Neb	Ortho Surg
St Elizabeth's Hospital ★	Lincoln Neb	Obst
Veterans Admin Hospital	Lincoln Neb	Int Med Ortho Surg Surg Urol.
Norfolk State Hospital	Norfolk Neb	Psych
Bishop Clarkson Memorial Hospital ★	Omaha	Ob-Gyn Path
Creighton Memorial St Joseph Hospital ★	Omaha	Int Med Ob-Gyn Path Ped Psych Rad., Surg
Immanuel Deaconess Hospital	Omaha	Ob-Gyn
Lutheran Hospital	Omaha	Psych
Nebraska Methodist Hospital ★	Omaha	Path. Rad
St Catherine's Hospital ★	Omaha	Rad
University of Nebraska Hospital ★	Omaha	Anes Int Med Ob-Gyn Ophth Ortho Surg., Path Ped Psych Rad., Surg
Veterans Admin Hospital	Omaha	Int Med Psych Surg
New Hampshire State Hospital	Concord N H	Psych.
Mary Hitchcock Memorial Hospital ★	Hanover N H	Anes Derm Syph Int Med Path Ped Phys Med Rad. Surg
Elliott Hospital	Manchester N H.	Path
Atlantic City Hospital ★	Atlantic City N J	Int Med Path Rad Surg Urol.
Bayonne Hospital and Dispensary ★	Bayonne N J	Urol
Essex County Hospital for Contagious Diseases	Belleville N J	Con Dis
Camden Municipal Hospital	Camden N J	Con Dis
Cooper Hospital ★	Camden N J	Int Med Ob-Gyn Path Ped Rad Surg., Urol.
West Jersey Hospital ★	Camden N J	Path Surg
Essex County Overbrook Hospital	Cedar Grove N J	Psych
Englewood Hospital ★	Englewood N J	Int Med
Hunterdon Medical Center	Flemington N J..	Gen'l Pract
New Jersey Sanatorium for Tuberculosis Diseases	Glen Gardner N J	Pul Dis
New Jersey State Hospital	Greystone Park N J	Psych
Hackensack Hospital ★	Hackensack N J	Int Med Ob-Gyn Rad Surg
Berthold S Pollock Hospital for Chest Diseases	Jersey City N J	Pul. Dis Thor Surg
Medical Center-Jersey City Hospital ★	Jersey City N J	Anes., Int Med., Gyn Ophth Path Ped Rad Surg., Urol.
Margaret Hague Maternity Hospital	Jersey City N J	Obst.
Monmouth Memorial Hospital ★	Long Branch N J	Int Med. Obst Ortho Surg Path. Surg
Veterans Admin Hospital	Lyons N J	Psych
New Jersey State Hospital	Marlboro N J	Psych
Mountainside Hospital ★	Montclair N J	Gen'l Pract Int Med Path
Morristown Memorial Hospital ★	Morristown N J	Path
Burlington County Hospital	Mount Holly N J	Int Med Path Rad. Surg
Fitkin Memorial Hospital ★	Neptune N J	Int Med. Surg
Babies Hospital Coit Memorial	Newark N J	Ped
Hospital and Home for Crippled Children	Newark N J	Ortho Surg
Hospital of St Barnabas and for Women and Children ★	Newark N J	Path., Plas Surg Rad Surg
Newark Beth Israel Hospital ★	Newark N J	Int Med Ob-Gyn Path Rad Surg
Harrison S Martland Medical Center ★	Newark N J	Int Med Otol. Path Rad. Surg Urol.
Newark Eye and Ear Infirmary	Newark N J	Ophth
Presbyterian Hospital ★	Newark N J	Path Surg
St Michael's Hospital ★	Newark N J	Int Med Obst Path Ped
St Peter's General Hospital ★	New Brunswick N J	Int Med
New Jersey Orthopedic Hospital and Dispensary	Orange N J	Ortho Surg
Orange Memorial Hospital ★	Orange N J	Int Med Ortho Surg Path Rad Surg Urol.
Bergen Pines County Hospital ★	Paramus N J	Psych Pul. Dis
Passaic General Hospital ★	Passaic N J	Path
St Mary Hospital ★	Passaic N J..	Path
Paterson General Hospital ★	Paterson N J	Int Med Obst. Path.
St Joseph Hospital ★	Paterson N J	Anes Path
Muhlenberg Hospital ★	Plainfield N J..	Path
Overlook Hospital ★	Summit N J	Gen'l Pract
Holy Name Hospital ★	Teaneck N J	Ob-Gyn
Mercer Hospital ★	Trenton N J	Int. Med Path. Rad. Surg
New Jersey State Hospital	Trenton N J	Psych.
Orthopedic Hospital and Dispensary	Trenton N J	Ortho Surg
St Francis Hospital ★	Trenton N J	Int Med Surg
Essex Mountain Sanatorium	Verona N J	Pul. Dis
Veterans Admin Hospital	Albuquerque N Mex	Int. Med Path Pul. Dis Surg
Carrie Tingley Hospital for Crippled Children	Truth or Consequences N Mex	Ortho Surg
Albany Hospital ★	Albany N Y	Anes Int Med. Neur Neuro Surg Ob-Gyn Otol. Ortho Surg., Path Ped Plas Surg Psych Pul. Dis Rad Surg Urol.
Anthony N Brady Maternity Hospital	Albany N Y	Obst
Bender Hygienic Laboratory	Albany N Y..	Path.
St Peter's Hospital ★	Albany N Y..	Ped
Veterans Admin Hospital	Albany N Y	Int Med Path., Psych., Rad., Surg
Veterans Admin Hospital	Bath N Y	Int Med
Binghamton City Hospital ★	Binghamton N Y	Int Med Path Surg
Binghamton State Hospital	Binghamton N Y	Psych
Beth El Hospital ★	Brooklyn	Anes Int Med. Ob-Gyn. Path. Ped. Surg
Brooklyn Eye and Ear Hospital	Brooklyn	Ophth. Otol.

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Name of Hospital	Location	Approved Residencies
Brooklyn Hospital★	Brooklyn	Int Med, Ob Gyn, Path, Ped, Rad, Surg
Brooklyn State Hospital	Brooklyn	Psych
Brooklyn Womens Hospital	Brooklyn	Ob Gyn
Coney Island Hospital★	Brooklyn	Int Med, Ob Gyn, Path, Ped, Surg
Cumberland Hospital★	Brooklyn	Int Med, Ob Gyn, Path, Ped, Rad, Surg
Greenpoint Hospital★	Brooklyn	Int Med, Ob Gyn, Path, Ped, Surg
House of St Giles the Cripple	Brooklyn	Ortho Surg
Jewish Hospital★	Brooklyn	Allergy Anes, Int Med, Ob Gyn, Ophth, Ortho Surg, Path, Ped, Rad, Surg, Urol
Jewish Sanitarium and Hospital for Chronic Diseases	Brooklyn	Int Med, Neur
John E Jennings Hospital	Brooklyn	Rad, Surg
Kings County Hospital★		
County Service	Brooklyn	Anes, Derm Syph, Int Med, Neur, Neuro Surg, Ob Gyn, Ophth, Otol, Ortho Surg, Path, Ped, Plas Surg, Psych, Pul Dis, Rad, Surg, Thor Surg, Urol
University Service		Ob Gyn, Ped, Surg, Thor Surg
Long Island College Hospital★	Brooklyn	Int Med, Ob Gyn, Ophth, Otol, Ortho Surg, Path, Ped, Rad, Surg, Urol
Maimonides Hospital★	Brooklyn	Anes, Int Med Ob Gyn, Path, Ped, Rad Surg, Urol
Methodist Hospital★	Brooklyn	Int Med, Ob Gyn, Ortho Surg, Path, Ped, Rad, Surg, Urol
Norwegian Lutheran Deaconess Home and Hospital★	Brooklyn	Int Med, Ob Gyn, Path, Ped, Surg
St Catherine's Hospital★	Brooklyn	Anes, Int Med, Ob Gyn, Path, Ped, Surg
St Charles Hospital Orthopedic Clinic	Brooklyn	Ortho Surg
St John's Episcopal Hospital★	Brooklyn	Int Med, Ob Gyn, Ped, Surg
St Mary's Hospital★	Brooklyn	Ob Gyn, Path, Surg
Unity Hospital★	Brooklyn	Ob Gyn
Veterans Admin Hospital	Brooklyn	Anes, Int Med, Neur, Ophth, Ortho Surg, Path, Psych, Rad, Surg, Thor Surg, Urol
Wyckoff Heights Hospital★	Brooklyn	Int Med, Ob Gyn Ped, Surg
Buffalo General Hospital★	Buffalo	Anes, Int Med, Neur, Neuro Surg, Ob Gyn, Ophth, Otol, Ortho Surg, Path, Rad, Surg, Urol
Buffalo State Hospital	Buffalo	Psych
Children's Hospital	Buffalo	Ortho Surg Ped, Surg
Deaconess Hospital★	Buffalo	Int Med, Ob Gyn, Path Rad
Edward J Meyer Memorial Hospital★	Buffalo	Anes Derm Syph Int Med, Ob Gyn Ophth, Ortho Surg, Path, Ped Psych, Pul Dis, Rad, Surg, Thor Surg, Urol
Emergency Hospital of the Sisters of Charity	Buffalo	Int Med, Surg
Mercy Hospital★	Buffalo	Gen'l Pract
Millard Fillmore Hospital★	Buffalo	Anes Gen'l Pract, Int Med, Ob Gyn, Ophth, Path, Proct, Surg, Urol
Roswell Park Memorial Institute	Buffalo	Mal Dis, Rad
Sisters of Charity Hospital★	Buffalo	Int Med, Ob Gyn Surg
Veterans Admin Hospital	Buffalo	Anes Int Med, Ortho Surg, Path, Phys Med, Psych, Rad, Surg, Urol
Mary McClellan Hospital	Cambridge N Y	Surg
Veterans Admin Hospital	Canandaigua, N Y	Psych
Veterans Admin Hospital	Castle Point, N Y	Pul Dis, Thor Surg
Central Islip State Hospital	Central Islip N Y	Psych
Clifton Springs Sanitarium and Clinic	Clifton Springs N Y	Int Med, Rad, Surg
Mary Imogene Bassett Hospital★	Cooperstown, N Y	Int Med, Ob Gyn, Ped, Surg
Nassau County Tuberculosis Hospital	Farmingdale, N Y	Pul Dis
St Joseph's Hospital	Far Rockaway, N Y	Gen'l Pract
Flushing Hospital and Dispensary★	Flushing N Y	Anes, Int. Med, Ob Gyn, Path, Ped, Surg
Hillside Hospital	Glen Oaks N Y	Psych
Meadowbrook Hospital★	Hempstead N Y	Int Med, Ob Gyn, Ortho Surg, Path, Ped, Psych, Rad, Surg, Urol
Irvington House	Irvington, N Y	Card Dis
Cornell University Infirmary	Ithaca N Y	Int Med
Tompkins Memorial Hospital	Ithaca, N Y	Int Med
Herman M Biggs Memorial Hospital	Ithaca N Y	Pul Dis, Thor Surg
Jamaica Hospital★	Jamaica, N Y	Surg
Mary Immaculate Hospital★	Jamaica, N Y	Int Med, Obst, Path, Ped, Surg
Queens General Hospital★	Jamaica N Y	Int Med, Ob Gyn Ophth, Ortho Surg, Path, Ped, Rad, Surg, Urol
Triboro Hospital	Jamaica, N Y	Pul Dis, Thor Surg
Charles S Wilson Memorial Hospital★	Johnson City N Y	Int Med, Ob Gyn, Path, Rad, Surg
Pine Wood Sanitarium	Katonah, N Y	Psych
Kings Park State Hospital	Kings Park N Y	Psych
Benedictine Hospital	Kingston, N Y	Gen'l Pract
Kingston Hospital	Kingston, N Y	Gen'l Pract
Ulster County Tuberculosis Hospital	Kingston N Y	Path
Our Lady of Victory Hospital★	Lackawanna, N Y	Gen'l Pract
Niagara Sanatorium	Lockport N Y	Pul Dis
River Crest Sanitarium	Long Island City, N Y	Psych
St John's Long Island City Hospital★	Long Island City, N Y	Path
Marcy State Hospital	Marcy, N Y	Psych
Middletown State Homeopathic Hospital	Middletown, N Y	Psych
Nassau Hospital★	Mineola N Y	Obst, Ophth, Ortho Surg, Path, Surg
Veterans Admin Hospital	Montrose, N Y	Psych
Mount Morris Tuberculosis Hospital	Mount Morris, N Y	Pul Dis
Mount Vernon Hospital★	Mount Vernon, N Y	Int Med, Obst, Path, Rad, Surg
New Rochelle Hospital★	New Rochelle, N Y	Int Med, Path, Rad, Surg
Bellevue Hospital Center		
Div I—Columbia University★	New York City	Int Med, Pul Dis, Surg Thor Surg
Div II—Cornell University★	New York City	Int Med, Neur, Surg, Urol
Div III—New York University College of Medicine★	New York City	Int Med, Neur, Ob Gyn, Path, Ped, Phys Med, Psych, Rad, Surg
Div IV—New York University Post Graduate Medical School★	New York City	Anes, Derm Syph, Int Med, Neuro Surg, Ophth, Otol, Ortho Surg, Rad, Surg
Beth David Hospital★	New York City	Int Med, Ob Gyn, Rad, Surg
Beth Israel Hospital★	New York City	Anes, Int Med, Neur, Ob Gyn, Ophth, Path, Plas Surg Rad, Surg Urol
Bird S Coler Memorial Hospital and Home	New York City	Phys Med
Bronx Eye and Ear Infirmary	New York City	Ophth
Bronx Hospital★	New York City	Int Med, Ob Gyn, Path, Ped, Rad, Surg
Doctors Hospital	New York City	Path, Rad
Flower and Fifth Avenue Hospitals	New York City	Anes Int Med, Ob Gyn, Path, Ped, Rad, Surg
Fordham Hospital★	New York City	Int Med, Ob Gyn, Path Ped, Surg, Urol
Francis Delafield Hospital	New York City	Gyn, Int Med, Path, Rad Surg Urol
French Hospital★	New York City	Int Med, Ob Gyn, Rad, Surg, Urol
Goldwater Memorial Hospital	New York City	Int Med, Neur, Ophth, Path, Phys Med, Rad, Surg
Gouverneur Hospital	New York City	Surg
Harlem Eye and Ear Hospital	New York City	Ophth
Harlem Hospital★	New York City	Int Med, Ob Gyn, Path, Ped, Rad, Surg
Hospital for Joint Diseases★	New York City	Anes, Int Med, Gyn, Ortho Surg, Path, Phys Med, Rad, Surg
Hospital for Special Surgery	New York City	Int Med, Ortho Surg, Phys Med
Jewish Memorial Hospital★	New York City	Int Med, Ob Gyn, Path, Surg

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Name of Hospital	Location	Approved Residencies
Knickerbocker Hospital★	New York City	Int Med Path Surg
Lebanon Hospital★	New York City	Int Med Path Surg
Lenox Hill Hospital★	New York City	Anes Card Dis Int Med, Neur Ob-Gyn Ophth Ortho Surg, Path., Ped Rad Surg
Lincoln Hospital★	New York City	Int Med., Ob Gyn Path, Ped Rad, Surg Urol.
Manhattan Eye Ear and Throat Hospital	New York City	Ophth Otol.
Manhattan General Hospital	New York City	Pul Dis
Manhattan State Hospital	New York City	Psych
Memorial Center for Cancer and Allied Diseases	New York City	Anes Int Med Path Rad Surg
Metropolitan Hospital★	New York City	Anes Derm. Syph Int Med Mal. Dis Neur Ob-Gyn. Ophth., Ortho Surg Path, Ped Phys Med Pul. Dis Rad Surg., Thor Surg Urol.
Misericordia Hospital★	New York City	Obst Ped.
Montefiore Hospital★	New York City	Anes Int Med Mal Dis Neur Ophth Path Phys Med Pul. Dis Rad Surg Thor Surg
Morrisania City Hospital★	New York City	Int Med Neur Ob-Gyn Path Ped Pul. Dis Rad, Surg Urol.
Mother Cabrini Memorial Hospital★	New York City	Surg
Mount Sinai Hospital★	New York City	Anes Derm. Syph Gastro Int Med Neur Neuro Surg Gyn Ophth Otol Ortho Surg Path Ped Phys Med Psych Rad Surg., Urol
New York City Hospital★	New York City	Anes Derm. Syph Int Med Neur Ob Gyn Ophth Otol. Path. Ped Phys Med Pul. Dis Rad Surg Urol.
New York Eye and Ear Infirmary	New York City	Ophth Otol.
New York Hospital★	New York City	Allergy Anes Derm Syph Int Med Neuro Surg Ob-Gyn Ophth Otol. Path Ped Plas Surg Psych., Rad. Surg Urol.
New York Infirmary★	New York City	Int Med Obst Ped Surg
New York Polyclinic Medical School and Hospital★	New York City	Anes Derm Syph Gastro Int Med., Ob-Gyn Ophth Otol. Ortho Surg, Path Rad Surg Urol.
New York State Psychiatric Institute and Hospital	New York City	Psych
New York University Bellevue Medical Center University Hospital	New York City	Allergy Anes Derm Syph Int Med. Gyn Path Ped, Psych Rad.
Presbyterian Hospital★	New York City	Anes Derm Syph Int Med. Neur Neuro Surg Ob Gyn Ophth Otol. Ortho Surg Path Ped Phys Med Plas Surg Rad Surg Urol.
Roosevelt Hospital★	New York City	Allergy Int Med Gyn., Otol., Path Ped Psych. Rad Surg, Urol.
St Barnabas Hospital for Chronic Diseases	New York City	Int Med. Path
St Clare s Hospital★	New York City	Anes Int Med Ob Gyn Path Ped. Surg Urol.
St Francis Hospital★	New York City	Int Med. Ob Gyn Surg
St Joseph Hospital for Chest Diseases	New York City	Pul Dis Thor Surg
St. Luke s Hospital★	New York City	Anes Card Dis Derm. Syph., Int. Med Ophth, Otol. Ortho Surg Path Ped Phys Med Rad Surg Urol.
St Vincent s Hospital★	New York City	Anes Int Med Neuro Surg, Ob-Gyn, Path Ped Rad Surg
Seton Hospital	New York City	Pul Dis
Sydenham Hospital★	New York City	Int Med Ob Gyn Ped Rad., Surg
Veterans Admin Hospital	New York City (Bronx)	Anes., Derm. Syph Int Med Neur Neuro Surg Ophth Otol. Ortho Surg Path. Phys Med Plast Surg Psych Rad, Surg Thor Surg Urol.
Willard Parker Hospital	New York City	Con Dis., Pul Dis
Woman s Hospital	New York City	Ob-Gyn
St Lawrence Hospital.	Ogdensburgh N Y	Psych
Homer Folks Tuberculosis Hospital	Oneonta N Y	Pul. Dis Thor Surg
Rockland State Hospital	Orangeburg N Y	Psych
Stony Lodge Sanitarium	Ossining N Y	Psych.
Municipal Sanatorium	Otisville N Y	Pul Dis
High Point Hospital	Port Chester N Y.	Psych
United Hospital★	Port Chester N Y.	Int Med Obst, Path Rad. Surg
St Charles Hospital for Crippled Children	Port Jefferson N Y	Ortho Surg
Hudson River State Hospital	Poughkeepsie N Y	Psych
Vassar Brother Hospital★	Poughkeepsie N Y	Gen'l Pract.
Creedmoor State Hospital	Queens Village N Y	Psych.
Raybrook State Tuberculosis Hospital	Raybrook N Y.	Pul Dis Thor Surg
Genesee Hospital★	Rochester N Y.	Anes Int. Med. Ob-Gyn Path. Ped Rad Surg
Highland Hospital★	Rochester N Y	Anes Int Med. Obst., Surg
Iola Monroe County Tuberculosis Sanatorium	Rochester N Y	Pul Dis
Rochester General Hospital★	Rochester N Y	Anes Int. Med, Obst, Ortho Surg Path Ped Rad Surg
Rochester State Hospital	Rochester N Y	Psych
St Mary s Hospital★	Rochester N Y	Int Med Ophth Path. Rad Surg
Strong Memorial Rochester Municipal Hospitals★	Rochester N Y	Anes Int Med Ob-Gyn Ophth Otol. Ortho Surg., Path Ped., Plas Surg., Psych., Rad Surg Urol.
St Francis Sanatorium for Cardiac Children	Roslyn L I N Y	Card Dis
U S Naval Hospital★	St Albans N Y	Int Med Ob-Gyn Ophth. Ortho Surg Path. Rad Surg Thor Surg Urol.
Ellis Hospital★	Schenectady N Y.	Anes Int Med Ob-Gyn Ortho Surg Path Psych Rad Surg
Schenectady County Tuberculosis Hospital	Schenectady N Y	Pul. Dis
U S Public Health Service Hospital★	Stapleton (Staten Island) N Y.	Anes., Derm. Syph Int Med., Ophth Path Rad Surg Urol.
St Vincent s Hospital★	Staten Island N Y	Int Med Ortho Surg Ped
Sea View Hospital	Staten Island N Y	Ophth Ortho Surg Ped Pul. Dis, Urol.
Staten Island Hospital★	Staten Island N Y	Int Med Path
Veterans Admin Hospital	Sunmount N Y	Pul Dis Thor Surg
General Hospital★	Syracuse N Y	Ob-Gyn
St Joseph s Hospital★	Syracuse N Y	Ob-Gyn Path Ped.
State University of New York Medical Center★	Syracuse N Y	Anes Int Med Ob-Gyn Ophth, Otol. Path Ped Plas Surg Rad Surg
Syracuse Psychopathic Hospital	Syracuse N Y	Psych.
Letchworth Village	Thiells N Y	Psych.
Samaritan Hospital★	Troy N Y	Path.
Trudeau Sanatorium	Trudeau N Y	Pul. Dis
Utica State Hospital	Utica N Y	Path. Psych
Grasslands Hospital★	Valhalla N Y.	Anes Int Med Ophth Path Ped Psych Pul. Dis Rad. Surg
Pilgrim State Hospital	West Brentwood N Y	Psych.
Rehabilitation Hospital	West Haverstraw N Y	Ortho Surg
New York Hospital Westchester Division	White Plains N Y.	Psych.
White Plains Hospital★	White Plains N Y	Int Med., Surg
Willard State Hospital	Willard N Y	Psych
Harlem Valley State Hospital	Wingdale N Y.	Psych
St John s Riverside Hospital★	Yonkers N Y	Path Rad
North Carolina Memorial Hospital★	Chapel Hill, N C.	Int Med Neur Ob-Gyn Ophth Path., Ped Psych Rad Surg
Charlotte Memorial Hospital★	Charlotte N C	Int Med Ob-Gyn Ortho Surg Path., Ped Rad., Surg Thor Surg., Urol.
Duke Hospital★	Durham N C.	Allergy Anes Card Dis Derm Syph. Gastro Int Med. Neur Neuro Surg Ob-Gyn Ophth. Otol. Ortho Surg Path. Ped Plas Surg Psych Pul. Dis Rad Surg Thor Surg Urol.
Lincoln Hospital★	Durham N C	Surg
McPherson Hospital	Durham N C	Ophth Otol.
Veterans Admin Hospital	Durham N C	Int Med Ortho Surg Path Psych Rad Surg Thor Surg
Watts Hospital★	Durham N C.	Int. Med Obst Path Ped Rad., Surg Urol.

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Name of Hospital	Location	Approved Residencies
North Carolina Orthopedic Hospital	Gastonia, N C	Ortho Surg
North Carolina Sanatorium for the Treatment of Tuberculosis	McCain N C	Pul Dis
Veterans Admin Hospital	Oteen, N C	Path , Pul Dis Thor Surg
Rex Hospital ★	Raleigh, N C	Int Med , Ob Gyn , Ped , Surg
St Agnes Hospital ★	Raleigh N C	Int Med , Ob Gyn , Surg
State Hospital	Raleigh, N C	Psych
Babies Hospital	Wilmington N C	Ped
James Walker Memorial Hospital ★	Wilmington N C	Int Med , Surg
City Memorial Hospital ★	Winston Salem, N C	Int Med , Ob Gyn , Ped , Surg
Kate Bitting Reynolds Memorial Hospital ★	Winston Salem, N C	Int Med , Surg
North Carolina Baptist Hospital ★	Winston Salem, N C	Int Med Neur , Neuro Surg , Ob Gyn , Ophth Otol, Ortho Surg, Path , Ped , Psych , Rad , Surg , Thor Surg , Urol
Bismarck Hospital	Bismarck, N D	Int Med , Rad , Surg
St Luke's Hospital ★	Fargo, N D	Int Med , Ob Gyn , Surg
Children's Hospital	Akron, Ohio	Ortho Surg , Ped Surg
City Hospital ★	Akron, Ohio	Gen'l Pract , Int Med , Ob Gyn , Ortho Surg , Path , Rad , Surg
People's Hospital ★	Akron, Ohio	Gen'l Pract Int Med , Ob Gyn , Path , Rad , Surg
St Thomas Hospital ★	Akron, Ohio	Gen'l Pract , Int Med , Ob Gyn , Surg
Veterans Admin Hospital	Brecksville Ohio	Pul Dis
Aultman Hospital ★	Canton, Ohio	Int Med , Ob Gyn , Path , Rad , Surg
Mercy Hospital ★	Canton Ohio	Anes , Gen'l Pract , Int Med , Ob Gyn , Rad , Surg
Windsor Hospital	Chagrin Falls, Ohio	Psych
Bethesda Hospital ★	Cincinnati	Int Med , Ob Gyn , Path
Children's Hospital	Cincinnati	Ortho Surg , Ped , Surg
Christ Hospital ★	Cincinnati	Anes , Gen'l Pract , Int Med , Neuro Surg , Path , Psych , Surg
Cincinnati General Hospital ★	Cincinnati	Card Dis , Derm Syph , Int Med , Neur , Neuro Surg , Obst , Ophth., Otol , Ortho Surg , Path , Ped , Psych , Rad , Surg , Urol
Deaconess Hospital ★	Cincinnati	Int Med , Surg
Good Samaritan Hospital ★	Cincinnati	Gen'l Pract , Int Med , Neuro Surg , Path , Ped , Rad , Surg
Jewish Hospital ★	Cincinnati	Int Med , Ortho Surg , Path , Rad , Surg
Longview State Hospital	Cincinnati	Psych
St Mary's Hospital ★	Cincinnati	Int Med , Surg
City Hospital ★	Cleveland	Anes Con Dis Derm Syph , Int Med , Neuro Surg , Ob Gyn , Ophth , Otol , Path , Ped , Pul Dis , Rad , Surg , Thor Surg , Urol
Cleveland Clinic Hospital	Cleveland	Anes , Card Dis Derm Syph Int Med , Neur , Neuro Surg Ophth , Otol , Ortho Surg , Path , Ped , Phys Med , Psych , Rad , Surg , Urol
Cleveland Receiving Hospital	Cleveland	Psych
Evangelical Deaconess Hospital ★	Cleveland	Ob Gyn
Fairview Park Hospital ★	Cleveland	Int Med , Obst , Surg
Lutheran Hospital ★	Cleveland	Int Med , Obst , Path Rad Surg
Mount Sinai Hospital ★	Cleveland	Anes Int Med , Ob Gyn , Ortho Surg , Path , Rad , Surg
St Alexis Hospital ★	Cleveland	Int Med , Surg
St Ann's Maternity Hospital	Cleveland	Obst
St John's Hospital ★	Cleveland	Int Med , Ob Gyn , Surg
St Luke's Hospital ★	Cleveland	Anes Int Med , Ob Gyn , Ophth , Otol , Ortho Surg , Path , Ped , Rad Surg
St Vincent Charity Hospital ★	Cleveland	Int Med , Path , Rad , Surg
University Hospitals ★	Cleveland	Anes , Derm Syph , Int. Med , Neuro Surg , Ob Gyn , Ophth , Ortho Surg , Path , Ped Psych , Rad Surg Urol
Veterans Admin Hospital	Cleveland	Int Med , Neur , Neuro Surg , Ophth , Ortho Surg , Path , Phys Med , Psych , Rad , Surg , Thor Surg , Urol.
Doctors Hospital ★	Cleveland Heights	Surg
Benjamin Franklin Hospital	Columbus, Ohio	Pul Dis , Thor Surg
Children's Hospital	Columbus Ohio	Ortho Surg , Path , Ped , Surg
Columbus State Hospital	Columbus Ohio	Psych
Grant Hospital ★	Columbus Ohio	Path
Mount Carmel Hospital ★	Columbus, Ohio	Int Med , Obst., Ortho Surg , Surg
Ohio State University Hospitals		
Columbus Receiving Hospital	Columbus, Ohio	Psych
Ohio Tuberculosis Hospital	Columbus Ohio	Psych Pul Dis , Thor Surg
St Francis Hospital	Columbus Ohio	Int Med Surg
University Hospital	Columbus, Ohio	Anes Card Dis , Gastro , Int Med , Ob Gyn , Ophth , Otol Ortho Surg , Path , Phys Med , Psych , Rad , Surg , Thor Surg Urol
St Ann's Maternity Hospital	Columbus Ohio	Obst
White Cross Hospital ★	Columbus, Ohio	Card Dis , Gen'l Pract , Int Med , Neuro Surg , Ob Gyn , Ortho Surg, Path , Surg
Good Samaritan Hospital ★	Dayton, Ohio	Ob Gyn , Surg
Miami Valley Hospital ★	Dayton, Ohio	Int Med Obst Path , Rad , Surg
St Elizabeth Hospital ★	Dayton, Ohio	Rad Surg
Veterans Admin Hospital	Dayton, Ohio	Int Med , Path Rad , Surg Urol
Huron Road Hospital ★	East Cleveland	Anes , Int Med Ob Gyn , Path Rad , Surg , Urol.
Elyria Memorial Hospital and Gates Hospital for Crippled Children ★	Elyria Ohio	Ortho Surg , Rad
Euclid Glenville Hospital ★	Euclid Ohio	Gen'l Pract
Marymount Hospital ★	Garfield Heights, Ohio	Anes , Int Med , Ob Gyn , Surg
Mercy Hospital ★	Hamilton Ohio	Path Surg
Lakewood Hospital ★	Lakewood, Ohio	Int Med , Obst , Surg
Lima Memorial Hospital ★	Lima Ohio	Gen'l Pract
St Rita's Hospital ★	Lima Ohio	Gen'l Pract , Int Med , Obst , Path , Surg
Mansfield General Hospital	Mansfield Ohio	Surg
Massillon State Hospital	Massillon Ohio	Psych
Maumee Valley Hospital ★	Toledo Ohio	Int Med , Obst Surg
Mercy Hospital ★	Toledo Ohio	Gen'l Pract , Int Med , Ob Gyn Path Ped , Surg
St Vincent's Hospital ★	Toledo, Ohio	Gen'l Pract , Int Med , Ob Gyn , Ortho Surg , Path , Rad , Surg , Urol
Toledo Hospital ★	Toledo, Ohio	Gen'l Pract , Int Med , Ob Gyn , Path , Surg
Sunny Acres, Cuyahoga County Tuberculosis Hospital	Warrensville, Ohio	Pul Dis
Harding Sanitarium	Worthington, Ohio	Psych
Mahoning County Tuberculosis Sanatorium	Youngstown, Ohio	Pul Dis
St Elizabeth Hospital ★	Youngstown, Ohio	Anes , Int Med , Ob Gyn , Path , Rad , Surg
Youngstown Hospital ★	Youngstown, Ohio	Anes , Int Med , Ortho Surg , Path , Proct , Rad , Surg
Bone and Joint Hospital and McBride Clinic	Oklahoma City	Ortho Surg
St Anthony Hospital ★	Oklahoma City	Int Med , Ob Gyn , Ortho Surg Surg
University Hospitals ★	Oklahoma City	Anes , Derm Syph , Gen'l Pract Int Med , Neuro Surg , Ob Gyn , Ophth , Otol , Ortho Surg , Path , Ped , Plast Surg , Rad , Surg , Urol
Veterans Admin Hospital ★	Oklahoma City	Int Med , Ortho Surg Rad , Surg
Wesley Hospital ★	Oklahoma City	Int Med , Ob Gyn , Rad , Surg
Hillcrest Medical Center ★	Tulsa, Okla	Int Med , Path , Ped , Surg , Urol
St John's Hospital ★	Tulsa Okla	Int Med , Ob Gyn , Path , Ped , Rad , Surg , Urol.
Emanuel Hospital ★	Portland, Ore	Int Med , Ob Gyn , Ortho Surg , Path Surg
Good Samaritan Hospital ★	Portland, Ore	Int Med , Path
Providence Hospital ★	Portland Ore	Int Med , Path , Rad , Surg
St Vincent's Hospital ★	Portland, Ore	Int Med , Obst , Path , Rad , Surg , Urol.
Shriners Hospital for Crippled Children	Portland, Ore	Ortho Surg

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Name of Hospital	Location	Approved Residencies
University of Oregon Medical School Hospitals and Clinics ★	Portland Ore	Anes Derm Syph Int Med Neur Neuro Surg Ob-Gyn Ophth Otol Ortho Surg Path Ped Rad Surg Thor Surg Urol.
Veterans Admin Hospital	Portland Ore	Int Med Ob-Gyn Path Plas Surg Proct Rad, Surg., Urol.
Oregon State Hospital	Salem Ore	Psych
Abington Memorial Hospital ★	Abington Pa	Anes Int Med Ob-Gyn Path Ped Rad Surg
Allentown Hospital ★	Allentown Pa	Int Med Ob Gyn Path Plas Surg Proct Rad Surg Urol.
Allentown State Hospital	Allentown Pa	Psych
Sacred Heart Hospital ★	Allentown Pa	Int Med Path Rad Surg
Veterans Admin Hospital	Aspinwall Pa	Allergy Derm Syph Int Med Ophth Otol. Path Phys Med., Rad Surg Urol
St Luke's Hospital ★	Bethlehem Pa	Int Med Ob Gyn Path Surg
Bradford Hospital	Bradford Pa	Gen'l Pract Surg
Bryn Mawr Hospital ★	Bryn Mawr Pa	Int Med Ob-Gyn Path Rad Surg
Chester Hospital ★	Chester Pa	Path
Veterans Admin Hospital	Coatesville Pa	Neur Psych
Danville State Hospital	Danville Pa	Psych
George F Geisinger Memorial Hospital ★	Danville, Pa	Gen'l Pract Int Med Obst., Ophth., Otol Ortho Surg Path., Ped Rad Surg Urol
Fitzgerald Mercy Hospital ★	Darby Pa..	Gen'l Pract Ob Gyn Path Rad
Eagleville Sanatorium for Consumptives	Eagleville Pa	Pul. Dis
Easton Hospital	Easton Pa	Int Med Surg
State Hospital for Crippled Children	Elizabethtown Pa	Ortho Surg
Embreeville State Hospital	Embreeville Pa	Psych
Hamot Hospital ★	Erie Pa	Int Med Ortho Surg Path Surg
St Vincent's Hospital ★	Erie Pa	Path Rad Surg Urol.
Westmoreland Hospital ★	Greensburg Pa	Int Med
Pennsylvania State Sanatorium for Tuberculosis	Hamburg Pa	Pul Dis
Harrisburg Hospital ★	Harrisburg Pa	Int Med Ob-Gyn Surg Urol.
Harrisburg Polyclinic Hospital ★	Harrisburg Pa	Int Med Ped Surg
Harrisburg State Hospital	Harrisburg Pa	Psych
Hazleton State Hospital	Hazleton Pa	Surg
Lancaster General Hospital	Lancaster Pa	Path
St Joseph's Hospital ★	Lancaster Pa	Gen'l Pract Path Surg
Norristown State Hospital	Norristown Pa	Psych
Sacred Heart Hospital ★	Norristown Pa	Gen'l Pract
Albert Einstein Medical Center		
Northern Division ★	Philadelphia	Anes Int. Med Gyn. Path Ped Rad Surg
Southern Division ★	Philadelphia	Anes Int Med Ob Gyn Path Ped Psych Rad. Surg Urol.
American Oncologic Hospital	Philadelphia	Mal Dis Rad
Chestnut Hill Hospital ★	Philadelphia	Rad.
Children's Hospital	Philadelphia	Ortho Surg Ped Surg
Doctors Hospital	Philadelphia	Surg
Episcopal Hospital ★	Philadelphia	Int Med Ob-Gyn Path Rad Surg Thor Surg Urol.
Frankford Hospital ★	Philadelphia	Int Med Ob-Gyn Path Rad Surg
Friends Hospital	Philadelphia	Psych
Germantown Dispensary and Hospital ★	Philadelphia	Int Med., Ob-Gyn Path Ped Rad Surg Urol.
Graduate Hospital of the University of Pennsylvania ★	Philadelphia	Anes Card Dis Derm Syph., Gastro Gyn Int Med Neur., Neuro Surg Ophth Otol., Ortho Surg Path Ped Plas Surg Rad Surg Urol.
Hahnemann Medical College and Hospital ★	Philadelphia	Anes Derm Syph. Int Med Ob Gyn Ortho Surg., Path Ped., Rad Surg Thor Surg Urol.
Hospital of the University of Pennsylvania ★	Philadelphia	Anes Derm Syph Gastro Int Med Neur Neuro Surg Ob-Gyn. Ophth Otol. Ortho Surg Path Ped., Phys Med. Psych. Rad. Surg Urol.
Hospital of the Women's Medical College of Pennsylvania ★	Philadelphia	Int Med Ob Gyn. Path, Ped. Rad Surg
Institute of the Pennsylvania Hospital	Philadelphia	Psych
Jeanes Hospital	Philadelphia	Mal. Dis Rad
Jefferson Medical College Hospital ★	Philadelphia	Derm Syph Gastro Int Med Neur Neuro Surg Ob-Gyn. Ophth Otol Ortho Surg Path Ped Proct., Psych Rad Surg., Urol
Lankenau Hospital ★	Philadelphia	Int Med Obst Path., Ped Surg., Urol.
Methodist Episcopal Hospital ★	Philadelphia	Int Med Ob-Gyn Surg
Nazareth Hospital ★	Philadelphia	Rad
Pennsylvania Hospital ★	Philadelphia	Anes Card Dis Derm Syph., Int Med Ob-Gyn., Ortho Surg Path Rad Surg., Urol
Pennsylvania Hospital Department for Mental and Nervous Diseases	Philadelphia	Psych
Philadelphia General Hospital ★	Philadelphia	Card Dis Derm Syph Int Med. Neur Ob-Gyn., Ophth Ortho Surg Path Ped Phys Med Psych Rad. Surg Thor Surg Urol
Philadelphia General Hospital—Northern Division	Philadelphia	Con Dis
Philadelphia Psychiatric Hospital	Philadelphia	Psych.
Philadelphia State Hospital	Philadelphia	Psych
Presbyterian Hospital ★	Philadelphia	Anes Int Med Path., Rad Surg., Urol.
St Christopher's Hospital for Children	Philadelphia	Ped
St. Joseph's Hospital ★	Philadelphia	Surg
St Luke's and Children's Medical Center ★	Philadelphia	Ped
St Mary's Hospital ★	Philadelphia	Surg
Shriners Hospital for Crippled Children	Philadelphia	Ortho Surg
Skin and Cancer Hospital	Philadelphia	Derm. Syph
Temple University Hospital ★	Philadelphia	Allergy Anes, Card Dis Gastro Int Med Neuro Surg Ob-Gyn Ophth Otol. Ortho Surg Path Ped Proct Psych. Rad Surg., Urol.
U S Naval Hospital ★	Philadelphia	Anes Derm Syph Int Med Neur Ob-Gyn Ophth Otol. Ortho Surg Path Ped. Psych. Rad Surg Urol.
Veterans Admin Hospital	Philadelphia	Derm Syph Int Med. Path Phys Med Psych. Rad Urol.
Wills Eye Hospital	Philadelphia	Ophth
Woman's Hospital ★	Philadelphia	Int. Med Ob-Gyn. Surg
Valley Forge Army Hospital ★	Phoenixville	Int Med Surg
Allegheny General Hospital ★	Pittsburgh	Anes Int Med Ortho Surg Path. Ped. Rad., Surg Urol.
Children's Hospital	Pittsburgh	Ortho Surg Path Ped Surg
Elizabeth Steel Magee Hospital	Pittsburgh	Int Med Ob Gyn.
Eye Ear Nose and Throat Hospital	Pittsburgh	Ophth Otol
Mercy Hospital ★	Pittsburgh	Anes Int Med Neuro Surg Ob-Gyn. Path. Rad. Surg Urol.
Montefiore Hospital ★	Pittsburgh	Allergy Anes Int Med. Obst Ophth. Path Rad Surg
Pittsburgh Hospital ★	Pittsburgh	Int Med Ob-Gyn Surg
Pittsburgh Medical Center	Pittsburgh	Neuro Surg., Rad Urol.
Presbyterian Hospital ★	Pittsburgh	Card Dis Int Med Ortho Surg Path Plas Surg Proct. Surg Urol.
St Francis Hospital ★	Pittsburgh	Anes Card Dis Int. Med Neur Ob-Gyn Ortho Surg Path., Psych Rad. Surg
St John's General Hospital ★	Pittsburgh	Gen'l Pract
St Margaret Memorial Hospital ★	Pittsburgh	Int Med Ob Gyn
South Side Hospital ★	Pittsburgh	Int Med Ob Gyn.
Tuberculosis League Hospital	Pittsburgh	Pul. Dis
Western Pennsylvania Hospital ★	Pittsburgh	Int Med., Path Ped., Rad., Surg
Western State Psychiatric Institute and Clinic	Pittsburgh	Psych
Community General Hospital ★	Reading Pa...	Gen'l Pract Path.

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Reading Hospital ★	Reading, Pa	Int Med, Ob Gyn, Ortho Surg, Path, Rad, Surg
St Joseph's Hospital ★	Reading, Pa	Int Med, Path, Rad Surg
Robert Packer Hospital ★	Sayre, Pa	Anes, Int Med Neuro Surg, Ophth, Ortho Surg, Path, Ped, Rad, Surg, Urol
Scranton State Hospital ★	Scranton Pa	Int Med, Path
Sharon General Hospital	Sharon, Pa	Gen'l Pract, Rad
Mont Alto State Sanatorium (Pennsylvania State Sanatorium No 1)	South Mountain, Pa	Pul Dis
Warren State Hospital	Warren, Pa	Psych
Chester County Hospital ★	West Chester, Pa	Rad
Mercy Hospital ★	Wilkes Barre, Pa	Surg Urol
Wilkes Barre General Hospital ★	Wilkes Barre, Pa	Int Med, Path, Urol
Columbia Hospital ★	Wilkinsburg, Pa	Surg
Williamsport Hospital ★	Williamsport, Pa	Path, Surg
Woodville State Hospital	Woodville, Pa	Psych
York Hospital ★	York Pa	Int Med Path, Surg
State Hospital for Mental Diseases	Howard R I	Psych
Memorial Hospital ★	Pawtucket R I	Gen'l Pract
Butler Hospital	Providence R I	Psych
Charles V Chapin Hospital	Providence, R I	Ped, Psych
Providence Lying In Hospital	Providence R I	Obst
Rhode Island Hospital ★	Providence R I	Anes, Card Dis, Int Med, Gyn, Ortho Surg, Path, Ped Rad., Surg, Urol
Roger Williams General Hospital ★	Providence R I	Rad
Veterans Admin Hospital	Providence R I	Int Med, Surg
Emma Pendleton Bradley Home	Riverside, R I	Psych
Roper Hospital ★	Charleston, S C	Anes, Int Med, Ob Gyn, Ophth, Ortho Surg, Path, Ped, Rad, Surg, Urol
Columbia Hospital ★	Columbia S C	Int Med, Ob Gyn, Ortho Surg, Ped, Rad.
Veterans Admin Hospital	Columbia S C	Int Med, Ortho Surg, Rad Surg
McLeod Infirmary ★	Florence S C	Ob Gyn
Greenville General Hospital ★	Greenville S C	Gen'l Pract, Ob Gyn, Ortho Surg, Path
Shriners Hospital for Crippled Children	Greenville S C	Ortho Surg
Orangeburg Regional Hospital ★	Orangeburg S C	Urol
Spartanburg General Hospital ★	Spartanburg S C	Gen'l Pract, Rad
Sacred Heart Hospital ★	Yankton S D	Gen'l Pract Surg
Baroness Erlanger Hospital ★	Chattanooga Tenn	Anes Int Med, Obst Ortho Surg, Path, Surg
Memorial Hospital	Chattanooga, Tenn	Int Med Ob Gyn
Newell Hospital	Chattanooga Tenn	Surg
T C Thompson Children's Hospital	Chattanooga Tenn	Ped
Knoxville General Hospital ★	Knoxville Tenn	Int Med Ob Gyn, Ped, Surg
St Mary's Memorial Hospital ★	Knoxville Tenn	Gen'l Pract, Ortho Surg Path
Madison Rural Hospital and Sanitarium	Madison College, Tenn	Gen'l Pract
Baptist Memorial Hospital ★	Memphis, Tenn	Int Med, Neuro Surg, Ob Gyn, Path, Ped, Rad, Surg, Thor Surg, Urol
Campbell Clinic Hospital	Memphis, Tenn	Ortho Surg
Gailor Memorial Psychiatric Hospital	Memphis Tenn	Psych
John Gaston Hospital ★	Memphis Tenn	Anes, Int Med, Ob Gyn, Ophth, Otol, Path, Ped, Rad, Surg, Urol.
Le Bonheur Children's Hospital	Memphis Tenn	Ped
Memphis Eye Ear Nose and Throat Hospital	Memphis, Tenn	Ophth
Methodist Hospital ★	Memphis, Tenn	Obst Path, Ped Rad, Surg
St Joseph's Hospital ★	Memphis, Tenn	Int Med, Ob Gyn, Path Ped, Surg, Urol
Veterans Admin Hospital	Memphis, Tenn	Gastro, Int Med, Neuro Surg Ophth Otol, Ortho Surg, Path, Phys Med Psych Pul Dis, Rad, Surg, Thor Surg, Urol
West Tennessee Tuberculosis Hospital	Memphis Tenn	Thor Surg
George W Hubbard Hospital of Meharry Medical College ★	Nashville, Tenn	Int Med, Ob Gyn, Path, Ped Rad Surg
Mid State Baptist Hospital ★	Nashville Tenn	Int Med Obst Surg
Nashville General Hospital ★	Nashville, Tenn	Int Med, Ob Gyn Path Surg
St Thomas Hospital ★	Nashville Tenn	Int Med Obst Ped, Surg
Vanderbilt University Hospital ★	Nashville, Tenn	Anes Int Med Neuro Surg, Ob Gyn, Ortho Surg Path Ped, Psych Rad Surg Urol
Veterans Admin Hospital	Nashville Tenn	Int Med, Path, Psych, Rad, Surg
Oak Ridge Institute of Nuclear Studies	Oak Ridge Tenn	Int Med
Oakville Memorial Sanatorium	Oakville Tenn	Pul Dis
Brackenridge Hospital ★	Austin Texas	Ob Gyn, Path Rad Surg
Baylor University Hospital ★	Dallas Texas	Anes Int Med Ob Gyn, Ortho Surg, Path Plas Surg, Proct, Rad Surg, Thor Surg
Children's Medical Center	Dallas Texas	Ped
Gaston Hospital	Dallas, Texas	Surg
Methodist Hospital ★	Dallas Texas	Int Med Ob Gyn Rad Surg
Parkland Hospital ★	Dallas, Texas	Anes Int Med Neur, Ob Gyn, Ophth, Ortho Surg, Path, Psych, Rad, Surg, Urol
St Paul's Hospital ★	Dallas Texas	Int Med, Ob Gyn, Path Ped, Rad
Texas Scottish Rite Hospital for Crippled Children	Dallas Texas	Ortho Surg
Timberlawn Sanitarium	Dallas Texas	Psych
Veterans Admin Hospital ★	Dallas, Texas	Int Med, Ophth, Otol, Ortho Surg, Path, Rad, Surg, Urol
Woodlawn Hospital	Dallas, Texas	Pul Dis
Hotel Dieu, Sisters Hospital	El Paso Texas	Obst
William Beaumont Army Hospital ★	El Paso Texas	Int Med, Surg
City County Hospital ★	Fort Worth Texas	Gen'l Pract
Harris Hospital ★	Fort Worth, Texas	Int Med Ob Gyn, Path, Surg
St Joseph Hospital ★	Fort Worth Texas	Gen'l Pract
St Mary's Hospital	Galveston, Texas	Gen'l Pract
University of Texas Medical Branch Hospitals ★	Galveston, Texas	Anes, Card Dis Derm Syph Int Med, Neur Neuro Surg Ob Gyn Ophth Otol, Ortho Surg, Path, Ped, Plas Surg, Psych, Rad, Surg, Urol
Gonzales Warm Springs Foundation for Crippled Children	Gonzales, Texas	Phys Med
Hermann Hospital ★	Houston, Texas	Anes Int Med, Ob Gyn, Ortho Surg, Path, Ped, Rad, Surg, Urol
Jefferson Davis Hospital ★	Houston, Texas	Int Med Derm Syph, Ob Gyn Ophth Otol, Ortho Surg, Path, Ped Plas Surg Rad, Surg, Urol
Methodist Hospital ★	Houston, Texas	Int Med, Neuro Surg, Ob Gyn, Rad, Surg
St Joseph's Hospital ★	Houston, Texas	Obst Ortho Surg, Path, Rad Surg Urol
Southern Pacific Hospital	Houston, Texas	Int Med Surg
University of Texas M D Anderson Hospital for Cancer Research	Houston, Texas	Gyn Int Med, Mal Dis, Path Rad Surg
Veterans Admin Hospital ★	Houston, Texas	Anes, Int Med, Neur, Ophth Otol Ortho Surg Path Phys Med, Psych, Pul Dis Surg, Urol
Nan Travis Memorial Hospital	Jacksonville, Texas	Gen'l Pract
Veterans Admin Hospital ★	McKinney, Texas	Anes, Int Med, Ophth, Otol, Ortho Surg, Path, Pul Dis Rad Surg, Thor Surg, Urol
Shannon West Texas Memorial Hospital	San Angelo, Texas	Gen'l Pract
Baptist Memorial Hospital ★	San Antonio, Texas	Gen'l Pract, Ob Gyn Path Rad
Brooke Army Hospital ★	San Antonio, Texas	Anes, Card Dis, Derm Syph, Gastro, Int Med, Ob Gyn Ophth Otol, Ortho Surg, Path, Ped, Phys Med, Plas Surg Rad Surg, Urol

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Name of Hospital	Location	Approved Residencies
Robert B Green Memorial Hospital ★	San Antonio Texas	Gen'l Pract Int Med Ob Gyn Path Surg
Santa Rosa Hospital ★	San Antonio Texas	Int Med. Path Ped Rad
U S Air Force Hospital	San Antonio Texas	Anes Int Med Ortho Surg Surg
Kings Daughters Hospital ★	Temple Texas	Gen l Pract
Scott and White Memorial Hospital ★	Temple Texas	Anes Int Med Ophth Ortho Surg Rad
Veterans Admin Hospital	Waco Texas	Psych
U S Air Force Hospital	Wichita Falls Texas	Surg
Wichita General Hospital	Wichita Falls Texas	Gen l Pract
St Benedict's Hospital ★	Ogden Utah	Path
Thomas D Dee Memorial Hospital ★	Ogden Utah	Int Med Ob-Gyn Surg
Dr W H Groves Latter Day Saints Hospital ★	Salt Lake City	Int Med Ob-Gyn Path Surg Thor Surg
Holy Cross Hospital ★	Salt Lake City	Int Med Ob-Gyn Path Surg
Primary Children's Hospital	Salt Lake City	Ortho Surg
St Mark's Hospital ★	Salt Lake City	Surg
Salt Lake County General Hospital ★	Salt Lake City	Int Med Ob Gyn Ortho Surg Path Ped Psych Surg
Shriners Hospital for Crippled Children	Salt Lake City	Ortho Surg
Veterans Admin Hospital ★	Salt Lake City	Int Med Neur Ortho Surg Path Psych Surg
Bishop DeGoesbriand Hospital ★	Burlington Vt	Anes Int Med Ob Gyn Path Rad Surg
Mary Fletcher Hospital ★	Burlington Vt	Anes Int Med Ob-Gyn Path, Ped Rad Surg Urol.
Vermont State Hospital	Waterbury Vt	Psych
Veterans Admin Hospital	White River Junction Vt	Anes Int Med Neuro Surg Path Plas Surg Rad Surg Urol.
Alexandria Hospital ★	Alexandria Va	Int Med Obst Surg
Arlington Hospital	Arlington Va	Obst
Blue Ridge Sanatorium	Charlottesville Va	Pul Dis
University of Virginia Hospital ★	Charlottesville Va..	Allergy Derm Syph Int Med Neuro Surg Ob Gyn Ophth Otol. Ortho Surg Path Ped Psych Rad Surg Thor Surg Urol
Chesapeake & Ohio Railway Employees Hospital ★	Clifton Forge Va	Int Med Surg
Memorial Hospital ★	Danville Va	Path
U S Army Hospital	Fort Belvoir Va	Surg
Lynchburg General Hospital ★	Lynchburg Va	Ob Gyn Path
Riverside Hospital ★	Newport News Va	Gen l Pract Int Med Ob-Gyn Path Surg
De Paul Hospital ★	Norfolk Va	Int Med Ob Gyn Path Rad Surg
Norfolk General Hospital ★	Norfolk Va	Int Med Ob-Gyn Path Rad Surg
U S Naval Hospital ★	Portsmouth Va	Gen'l Pract Int Med Ob-Gyn Ortho Surg Surg
Crippled Children's Hospital	Richmond Va	Ortho Surg
Johnston Willis Hospital ★	Richmond Va	Int Med Obst Surg
Medical College of Virginia—Hospital Division ★	Richmond Va	Allergy Anes Derm Syph Int Med Neuro Surg Obst Ophth Otol Ortho Surg., Path Ped Phys Med Psych Rad Surg Urol
Retreat for the Sick	Richmond Va	Gen'l Pract
St Elizabeth Hospital	Richmond Va	Surg
Sheltering Arms Hospital	Richmond Va	Gen'l Pract
Veterans Admin Hospital ★	Richmond Va	Anes Card Dis Gastro Int Med Neur Neuro Surg Ophth Ortho Surg Path Phys Med., Psych Pul Dis Rad Surg Thor Surg Urol
Gill Memorial Eye Ear and Throat Hospital	Roanoke Va	Ophth
Jefferson Hospital ★	Roanoke Va	Surg
Lewis-Gale Hospital ★	Roanoke Va	Int Med Surg
Veterans Admin Hospital	Roanoke Va	Psych
Louise Obici Memorial Hospital ★	Suffolk Va	Gen'l Pract
Eastern State Hospital	Williamsburg Va	Psych
Madigan Army Hospital ★	Fort Lewis Wash	Int Med Surg
Western State Hospital	Fort Stellacoom Wash	Psych
Children's Orthopedic Hospital	Seattle	Ortho Surg Ped Surg
Doctors Hospital ★	Seattle	Anes Int Med Ob-Gyn Path., Surg
Firland Sanatorium	Seattle	Pul Dis Thor Surg
King County Hospital Unit No 1 (Harborview) ★	Seattle	Anes Int Med Neuro Surg Ob-Gyn Ophth Ortho Surg Path Ped., Surg
Maynard Hospital	Seattle	Gen'l Pract
Pinel Foundation	Seattle	Psych
Providence Hospital ★	Seattle	Gen l Pract Int Med Ob-Gyn Ortho Surg Path Rad Surg
Swedish Hospital ★	Seattle	Int Med Ob-Gyn Path Rad., Surg
U S Public Health Service Hospital ★	Seattle	Int Med Ophth Path. Surg
Veterans Admin Hospital ★	Seattle	Int Med Path Psych Surg
Virginia Mason Hospital ★	Seattle	Anes Int Med Obst Rad Surg
Deaconess Hospital ★	Spokane Wash	Path
Sacred Heart Hospital ★	Spokane Wash	Gen'l. Pract Path Rad
St Luke's Hospital ★	Spokane Wash	Int Med Ob Gyn Path Surg
Shriners Hospital for Crippled Children	Spokane Wash	Ortho Surg
St Joseph Hospital ★	Tacoma Wash	Path
Tacoma General Hospital ★	Tacoma Wash..	Anes Path
Beckley Hospital	Beckley W Va	Surg
Bluefield Sanitarium	Bluefield W Va	Gen'l Pract
Charleston General Hospital ★	Charleston W Va	Gen l Pract Int Med Path Surg
Kanawha Valley Hospital ★	Charleston W Va	Gen l Pract Surg
Memorial Hospital ★	Charleston W Va	Gen'l Pract Int Med Ob Gyn Ped Surg
Chesapeake & Ohio Hospital	Huntington W Va	Int Med., Surg
St Mary's Hospital ★	Huntington W Va	Int Med Obst Surg
Veterans Admin Hospital	Martinsburg W Va	Int Med Path Rad Surg
Laird Memorial Hospital	Montgomery W Va	Surg
Myers Clinic Hospital	Philippi W Va	Surg
Ohio Valley General Hospital ★	Wheeling W Va	Anes Gen'l Pract Int Med Path Surg
Mercy Hospital ★	Janesville Wis	Surg
La Crosse Lutheran Hospital ★	La Crosse Wis	Int Med Surg Urol.
Madison General Hospital ★	Madison Wis	Int Med Path Rad., Surg., Urol.
Methodist Hospital ★	Madison Wis	Rad Surg
St Mary's Hospital ★	Madison Wis	Int Med
University Hospitals		
State of Wisconsin General Hospital ★	Madison Wis	Anes Derm Syph. Int Med Neur Neuro Surg Ob-Gyn Ophth Otol Ortho Surg Path Ped Phys Med Plas Surg Psych Rad Surg Urol.
Veterans Admin Hospital	Madison Wis	Pul. Dis
St Joseph's Hospital ★	Marshfield Wis	Int Med Path Rad.
Columbia Hospital ★	Milwaukee	Int Med. Obst Ortho Surg Path Rad Surg
Evangelical Deaconess Hospital ★	Milwaukee	Gen'l Pract Rad Surg
Milwaukee Children's Hospital ★	Milwaukee	Ortho Surg Ped. Surg
Milwaukee County Hospital ★	Milwaukee	Int Med Ob Gyn., Ophth Path Ped Proct Rad Surg Urol
Milwaukee County Hospital for Mental Diseases	Milwaukee	Psych.
Milwaukee Hospital ★	Milwaukee	Gen'l Pract Int Med Ob-Gyn., Path Rad Surg
Mount Sinai Hospital ★	Milwaukee	Int Med Ob-Gyn
Muirdale Sanatorium	Milwaukee	Pul Dis Thor Surg
St Joseph's Hospital ★	Milwaukee	Int Med Ob-Gyn. Path Rad Surg
St Luke's Hospital ★	Milwaukee	Int Med., Ob-Gyn. Surg
St Mary's Hospital ★	Milwaukee	Ob-Gyn Path.
St Michael's Hospital ★	Milwaukee	Gen l Pract
Veterans Admin Hospital	Milwaukee	Anes Derm Syph Int Med Ophth Otol. Ortho Surg Path Phys Med Pul. Dis Rad., Surg Urol.
Wisconsin State Sanatorium	Statesan Wis	Pul. Dis

★ Indicates hospitals approved for training interns

Name of Hospital	Location	Approved Residencies
Milwaukee Sanatorium	Wauwatosa Wis	Psych
Kapiolani Maternity and Gynecological Hospital	Honolulu, T H	Ob Gyn
Kauikeolani Children's Hospital	Honolulu, T H	Ped
Leahi Hospital	Honolulu, T H	Pul Dis, Thor Surg
Queen's Hospital *	Honolulu, T H	Int Med, Ob Gyn, Path, Psych, Rad, Surg
St Francis Hospital *	Honolulu T H	Ob Gyn
Shriners Hospital for Crippled Children	Honolulu, T H	Ortho Surg
Tripler Army Hospital *	Honolulu, T H	Int Med, Ob Gyn, Rad, Surg, Urol
Territorial Hospital	Kaneohe Oahu T H	Psych
Bayamon District Hospital *	Bayamon, P R	Int Med, Path, Ped, Surg
San Juan City Hospital *	San Juan P R	Anes Int Med, Ob Gyn, Path, Ped, Rad, Surg, Urol
Veterans Admin Hospital	San Juan P R	Int Med, Rad, Surg
Gorgas Hospital *	Ancon, C Z	Int Med, Ob Gyn, Ophth, Path, Rad, Surg

* Indicates hospitals approved for training interns

GRADUATE TRAINING PROGRAMS

Acceptable by the American Board of Psychiatry and Neurology Until July 1, 1956

The Council on Medical Education and Hospitals has limited its approval of programs for graduate training to those offered in connection with general or special hospitals The following information is published, however, at the request of the American Board of Psychiatry and Neurology to indicate the availability of a special type of training that is acceptable to the board and carries full credit toward certification by that board The board has announced, however, that after July 1, 1956, credit for training in child psychiatry will be granted when such training is integrated with and contributory to an approved residency program Independent approval of child guidance centers by the American Board of Psychiatry and Neurology will be terminated as of that date

REQUIREMENTS FOR ACCEPTANCE

In order to facilitate the arrangements for training in child psychiatry (which constitutes a major aspect of modern psychiatry), the American Board of Psychiatry and Neurology will accept one year of training in psychiatric clinics for children, which may or may not be a part of a hospital approved for residency training, provided such a clinic gives adequate supervision and instruction for full time training during the entire third year of the required three year formal training period For the purpose of evaluating such clinics, the following conditions and criteria are deemed essential by the American Board of Psychiatry and Neurology

1 That the clinic have a full time medical director, psychologist, and social worker qualified by training and experience in child psychiatry and allied fields to supervise the training of residents

2 That the major portion of such training be devoted to therapy adequately supervised by this qualified staff

3 That the service and teaching activities of the clinic be integrated with those of the community and its social agencies

4 That clinic work be supplemented by seminars, case conferences, journal clubs or other opportunities for the discussion of the basic principles involved in outpatient work with children and parents, teacher, public health and welfare agency personnel

5 That such a training clinic be well established in the community with a qualified staff that has operated together long enough as a team to insure stable and sound functioning

6 That the senior members of the clinic team show evidence of previous experience in the teaching of psychiatry in general, child psychiatry in particular, and their allied fields

These criteria set forth by the Board pertain more particularly to community sponsored clinics offering full time training in child psychiatry during the third year of formal residency training If these clinics are affiliated with hospitals already maintaining approved programs, separate approval is not required unless warranted on the basis of their meeting all requirements for straight fellowship training in child psychiatry

The following clinics are acceptable to the American Board of Psychiatry and Neurology as qualifying under these provisions until July 1, 1956

Center	Director
Pasadena Child Guidance Clinic 40 E Dayton Central Park Pasadena 2, Calif	Dr M B Durfee
Children's Psychiatric Division Langley Porter Clinic San Francisco	Dr Stanislaus Szurek
Clifford W Beers Guidance Clinic 432 Temple Street New Haven 11 Conn	Dr William B Curtis
Institute for Juvenile Research 907 S Wolcott Ave Chicago	Dr Julius B Richmond
Louisville Mental Hygiene Clinic and Child Study School 610 S Floyd Street Louisville Ky	Dr Spafford Ackerly
The Guidance Center 1737 Prytania Street New Orleans	Dr Jack E Chappuis, Acting Director
The Psychiatric Clinic of the Mental Hygiene Society of Maryland Baltimore	Dr H Whitman Newell
Douglas A Thom Clinic for Children Inc 315 Dartmouth Street Boston	Dr Eveoleen N Rexford
Judge Baker Guidance Center 38 Beacon Street Boston	Dr George E Gardner
Children's Center 244 Townsend Street Roxbury, Mass	Dr Marian Putnam and Mrs Beata Rank, Co-directors
Worcester Child Guidance Clinic 2 State Street Worcester 5 Mass	Dr Joseph Weinreb
Amherst H Wilder Clinic 279 Rice Street St Paul	Dr Hyman S Lippman
Jewish Board of Guardians 228 East 19th Street New York 3	Dr Joachim Flescher
Central Clinic Cincinnati General Hospital Cincinnati	Dr Maurice Levine
Cleveland Guidance Center 2525 Euclid Avenue Cleveland	Dr Claire M Ness
Child Guidance Clinic 1711 Fitzwater Street Philadelphia 46	Dr Frederick H Allen
Pittsburgh Child Guidance Clinic 3004 Victoria Street Pittsburgh 13	Dr Harry M Little
Children's Service Center of Wyoming Valley 335 South Franklin Street Wilkes Barre, Pa	Dr J Franklin Robinson
The Children's Service Center of Charlottesville and Albemarle County, Inc 116 14th Street, N W Charlottesville, Va.	Dr Frank J Curran

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ANNUAL REPORT ON INTERNSHIPS AND RESIDENCIES

In the 28th Annual Report on Internships and Residencies by the Council on Medical Education and Hospitals, which appears in this issue of THE JOURNAL, information is presented on internship and residency programs approved by the Council, including 10 tables on internships analyzing positions filled and vacant by type of service, hospital control, bed capacity, and other bases, and 3 tables presenting similar information on residencies The report points out that last year there were 26,894 physicians serving as full-time members of house staffs in hospitals throughout the United States, 8,275 as interns and 18,619 as residents This represents an increase during the past 10 years of almost 75% in the number of physicians engaged in full-time graduate training, from about 15,000 in 1945 to over 26,000 this year It can be estimated on this basis that one physician in seven of those engaged in providing professional services to patients is serving in the capacity of an intern or resident The significance of this fact in terms of service and medical education, the report states, is evident

According to the report, the percentage of internship and residency positions filled is now about the same, 78% and 79% respectively It is pointed out that the number of positions offered varies considerably from year to year, depending largely on the demand for interns and residents by approved hospitals A solution to the problem of house staff shortages, accordingly, can be found in a realistic self-appraisal of their house staff requirements by all hospitals engaged in graduate training, from the standpoint not alone of services required but of their potential for providing a worth-while educational experience for these graduates

The report refers to an announcement made this spring by the Council and the American Board of Pediatrics, in accordance with which only those programs providing two years of fully integrated training will be approved after July 1, 1957 Policies similar to this have already been adopted in the fields of anesthesiology, orthopedic surgery, otolaryngology, and general surgery The basic principle is that of assuring a resident of progressive responsibility with continuity of supervision and experience during the course of his training period From an educational standpoint, the justification for programs offering partial training in a specialty is not evident It can be anticipated that this general principle will be extended to other specialties where it is applicable

The Council in its report makes grateful acknowledgment to the many organizations with which it collaborates for their continued support in the field of graduate education and to the medical staffs and administrations of hospitals throughout the country for providing the data on which the report is based Through the assistance and cooperation of these individuals and organizations it has been possible to present a current appraisal of the situation relating to this increasingly important aspect of medical education, training at the graduate level The report is commended to the attention of the profession, medical educators, hospital administrators, and others interested in the subject, as well as, more particularly, to the young graduate making plans for his professional career

FOREIGN GRADUATES

Hospitals reported an increase over last year of 630 in the number of interns serving and 1,752 in the number of residents on duty The increase in both categories represents, for the most part, the larger number of graduates of foreign medical schools being appointed to house staffs in hospitals throughout the country The American Medical Association, the Federation of State Examining Boards of the United States, and other national and state organizations have been examining the problems presented by the influx of physicians from other lands Criticism has been voiced of the wisdom of present policies relative to the foreign graduate, in terms of the effect, both immediate and long range, on the level of medical care in this country The general question of the responsibility of American medicine for providing advanced training for these persons has been argued from the same viewpoints of nationalism versus internationalism as have been problems in the economic and social fields

In considering the subject one may properly raise a number of questions relative to the status of these physicians Are hospitals justified in appointing as members of their house staffs applicants whose credentials, in many instances, are not subject to verification? What are the criteria for evaluating the professional qualifications of graduates of foreign schools? Does the hospital have any responsibility for these physicians beyond providing them with an adequate educational experience, or is the question of their eligibility for licensure on completion of their training a proper concern of the hospital? Is it equitable to permit a foreign graduate who wishes to remain in this country to continue to serve as a member of the house staff in a hospital, when he is not eligible for licensure in that state? If so, does this not create further problems for the licensing boards of other states to which he may apply on completion of his training?

Is it feasible or equitable to establish policies relating to graduates of foreign medical schools on the basis of whether they plan to return to their native country, knowing that an appreciable number may change their plans in this regard? To what degree are foreign graduates being exploited for reasons of service?

These and a host of other problems present themselves in even a preliminary examination of the foreign graduate problem To resolve them in the best interest of the public, and of the foreign graduates as well, will require the thoughtful and enlightened consideration of professional groups governmental agencies, hospitals, and others involved The problem is an immediate one, with many important and far reaching implications Failure to clarify the issues and develop a sound and equitable approach to the problem without delay can only result in a lowering of standards of patient care and of medical education in this country

APPROVED RESIDENCIES IN SURGERY

In the 1950 Internship and Residency Number of THE JOURNAL, an editorial appeared describing two categories of surgical residencies approved by the Council on Medical Education and Hospitals, those qualifying a candidate for examination by the American Board of Surgery and another group providing training in preparation for residencies in the surgical specialties Evidently there is still some misunderstanding as to the status of these two types of residencies, particularly the latter In July 1950 the American Board of Surgery announced that it would no longer accept training of less than three years' duration unless it was affiliated with or an integral part of a fully approved program After the adoption of this policy by the board, all residency programs in the country were reevaluated and approved as meeting this requirement or, in the case of 149 hospitals, as approved by the Council as offering suitable training in general surgery in preparation for residencies in the surgical specialties

One of the primary considerations in granting full approval to a residency program in general surgery has been the degree of responsibility that could be given to the resident staff, including that for major operative procedures Unless a resident is able to assume primary responsibility for operative work, particularly in the latter stages of his residency, he is not considered as qualified for certification in his specialty Accordingly, only those programs in surgery in which training of this nature was available were approved at the three and four year levels A number of hospitals were not in a position to give this degree of responsibility to their resident staff They did, however, offer a comprehensive orientation to the field of general surgery that provided an excellent background experience for graduates planning to complete a residency in one of the surgical specialties The majority of American boards in these specialties either recommend or require that a resident have a year of general surgery as part of his training This requirement can be met through completing a residency in one of the 121 hospitals currently approved for this limited type of training On the other hand, residents planning to qualify for examination by the American Board of Surgery must complete their training in a fully approved three or four year program and cannot qualify for examination through having had a residency in a hospital or hospitals approved on the other basis

In the directory of approved services in this issue, a statement regarding the type of approval appears as a preface to each list Hospitals accepting candidates for appointment to their resident staff and applicants for these appointments should take note of the type of approval that has been given to the program, particularly those in surgery, to avoid any misunderstanding as to their acceptance in qualifying for examination by one or another of the American boards

TRAVEL DURING PREGNANCY

The question of travel during pregnancy is one that interests most pregnant women and their physicians In this connection, Beach[1] interviewed 681 women in 1947, about half of whom had traveled during pregnancy, and found that travel is not a significant factor in causing abortion More recently, McFarland[2] reported that most women can travel safely as late as the end of the eighth month of pregnancy Pregnant women whose husbands are in military service frequently find it necessary to travel while they are pregnant, either because of a change of military assignment or because of an unstable environmental situation In a study to determine the possible effect of travel on pregnancy, Webb and Harvey[3] recently interviewed 500 pregnant women at the Robins Air Force Base Hospital and learned that 413 (82 6%) of them had traveled during their pregnancy The total distance traveled was 817,961 miles, or an average of 1,980 5 miles per patient Most traveling took place during the second trimester of pregnancy and was chiefly by automobile, with other means of transportation about equally represented During the period of travel, 119 patients (24%) sustained minor symptoms Of 54 patients admitted to the hospital with a diagnosis of abortion—complete, threatened, or induced—17 patients had traveled, 6 of whom had evinced symptoms before the trip began

The authors are convinced that travel by present-day means of transportation will not have a harmful effect on the course of a normal pregnancy, regardless of the duration of pregnancy, when judiciously mixed with a large dose of common sense about traveling, for example, pregnant women about to begin an automobile trip should plan the itinerary well in advance in order to avoid unnecessary inconveniences Nourishing meals, short walks, and adequate rest during the course of the journey are advisable Pregnant automobile passengers will find a cushion seat helpful Medication as a prophylaxis against airsickness or seasickness should be taken along by those who travel by air or boat Moreover, pregnant patients who travel by train or bus should be encouraged to plan "stop-overs" during a long trip Finally, the possibility that difficulty might arise during a trip in conjunction with obtaining immediate competent medical attention should always be considered

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[1] Beach, W B, Jr Travel in Pregnancy Am. J Obst & Gynec. 54 1054, 1947

[2] McFarland R A Human Factors in Air Transportation New York, McGraw Hill Book Company, Inc, 1953

[3] Webb, C F, and Harvey H B Travel During Pregnancy Obstetrics and Gynecology 4 222 1954

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

Progress already made in extending voluntary prepayment of the cost of illness is impressive, but it has not gone far enough to provide enough protection to enough persons In highly industrialized areas, where the group principle can more easily be applied, the coverage is strikingly greater than in less densely populated states and in the rural areas Coverage in different states varies from 45% to 85% The same techniques in working out plans of coverage cannot be applied everywhere but have to be modified to meet regional conditions It is important that at this time all possible effort be put forward to extend further protection to the whole insurable group

Particular attention should now be paid to small groups In some areas the family has been considered a satisfactory unit for group insurance purposes In rural and thinly populated areas thought should be given to formation of groups that would make possible the application of the group principle In these areas, commercial insurance companies with individual enrollments have progressed more rapidly than the nonprofit agencies and group enrollment plans

Aside from methods for increasing coverage numerically, attention should be directed to increasing the extent of coverage for the individual There are certain principles that should govern our thinking on the quality of coverage against hospital costs Insurance should cover the unpredictable items in the hospital bill but should not cover completely certain predictable costs, such as bed and board It is the unpredictable factor that causes the wide variation in hospital bills and makes for hardship on many persons Patients should be co-insurers, to a certain extent, and the hospitals should be under the necessity of collecting a portion of the cost from the patient A certain proportion of responsibility should be retained by the individual and by the hospital to prevent abuse on the one hand and lax administration on the other If the brake against overusage is applied on the bed cost, the patient would be assured freedom from a large bill and the hospital would find little difficulty in collecting a large number of small bills The principal benefit of health insurance is that it averages the cost of illness even if it does not pay the whole bill, providing the unpredictable items are covered

As actuarial data accumulate, an extension in the number of days in relation to premium cost becomes a practical matter According to experience in 35 Blue Cross plans, 2 02% of the patients in general hospitals stay longer than 30 days, 0 7% longer than 60 days, and 0 01% longer than 120 days These general figures, of course, cannot always be applied on a local or regional basis It is, therefore, desirable that each county society interest itself actively in the study of its own local problems and aid in the development of plans suitable to its local needs Physicians have a very definite moral responsibility for the health of their community and for aiding in the provision of adequate health facilities This is not all We have a more personal interest in having available to each of us a hospital that offers the facilities and services that we need for our professional advancement and for the care of our patients We can have such facilities only if we all do our part in promoting the financial security of our hospital Physicians also have a further responsibility for conserving the resources of the insuring agencies They can accomplish this in several ways They should avoid unnecessary admissions and should expedite the course of the patient through the hospital as rapidly as is compatible with good medical care The average stay of general medical and surgical patients in hospitals in the United States is now about seven and a half days Each day above this adds approximately 12% to the bill paid by the insurer or by the patient. Unnecessary use of laboratory or other ancillary hospital services adds to the hospital costs and necessitates higher hospital charges This must eventually be reflected in higher insurance premiums It is obviously desirable to keep insurance premiums down in order to make protection available to the low-income groups This can best be accomplished by the physician through his own acts and by impressing on the patient that he is a shareholder in a mutual endeavor

The development of small community hospitals under the Hill-Burton program has brought the problem of the financing of these hospitals to the rural areas These hospitals will be of little value unless they have the financial resources necessary to provide needed services This brings the matter squarely up to our local and county medical societies The Council on Medical Service of the American Medical Association is in a position to provide the local societies with much useful information that will aid in planning for these communities It is hoped that every county and local medical society will this year place on its program as one of its primary objectives the promotion of prepayment insurance in its community

WALTER B MARTIN, M D , Norfolk, Va

ORGANIZATION SECTION

VERMONT STATE MEDICAL SOCIETY

To permit readers of THE JOURNAL *to become better acquainted with the activities of state medical associations, articles describing them will appear from time to time in these pages* —ED

Although regional medical societies were formed in Vermont as early as about 1784, it was not until 1813 that the Vermont Medical Society was established On Nov 6 of that year the Vermont legislature, in 'An Act to Incorporate the Vermont Medical Society,' declared that "Whereas, in order to the improvement of the theory and practice of the different branches of the healing art, it becomes necessary that Medical Societies should be established—Therefore, it is hereby enacted by the General Assembly of the state of Vermont, That all those practitioners who have heretofore belonged to any medical society under a legislative act, or acts of this state," together with a list of physicians and surgeons designated in 13 counties, "may form themselves into a society, by the name of the Medical Society of the County in which such society is formed And it is further enacted, That there shall be a general Medical Society, to be composed of three members from each county society in the state elected by ballot at their annual meeting And it is hereby further enacted That the Members of the Vermont Medical Society, so elected and organized as aforesaid, shall have power to receive and determine all appeals, either of students or of members of the county societies, who may be aggrieved by the decision of any county society, and may grant diplomas to any student, who may appear to them worthy to receive the same and who may have been refused that privilege by any of the county societies " Almost a century later, Jan 29, 1913, an act to reorganize the Vermont Medical Society was passed, and the name of the corporation was changed to its present title, the Vermont State Medical Society The society, comprising nine county medical societies, has active sections in surgery and internal medicine In 1947 the society employed its first executive secretary, Attorney John Bromley, who established the executive offices at 128 Merchants' Row, Rutland These quarters also house the Vermont Physicians Placement Service and the state advisory committee to Selective Service In 1949 Mr Bromley resigned, and Mr Getty Page, the present incumbent, was selected to be executive secretary and public relations director The society publishes a monthly newsletter For the past five years the Vermont State Medical Society and the New Hampshire Medical Society have held a joint annual meeting, alternately at Bretton Woods, N H, and Manchester, Vt The next meeting will convene at Bretton Woods, Oct 3-5 Current officers of the Vermont State Medical Society include Dr Woodhull S Hall, Bennington, president, Dr Howard J Farmer, St Johnsbury, president-elect, Dr W Douglas Lindsay, Montpelier, vice-president, Dr James P Hammond, Bennington, secretary, and Dr David Marvin, Essex Junction, treasurer

PUBLIC RELATIONS DEPARTMENT

This is one of a series of brief statements explaining the work of various departments of the American Medical Association —ED

The Public Relations Department operates as a part of the Secretary and General Manager's office and supervises the public relations activities of the Association Much of its work is devoted to helping state and local medical societies build and maintain sound public relations and public service programs Every physician benefits from the Association's public relations activities in building good will for the profession and its efforts to seek out and eliminate the causes of public dissatisfaction with certain aspects of the practice of medicine today The department prepares literature for physicians' reception rooms, telling the positive story of American medicine, and works with other A M A councils, committees, and bureaus to develop radio and television shows, films, and exhibits increasing public understanding of modern medicine Weekly news releases on scientific, socioeconomic, or associational news are prepared and distributed to newspapers, news magazines, radio stations, house organs, trade papers, and science writers The department publicizes all A M A meetings and publishes a daily bulletin for physicians during annual and clinical meetings Services to magazine writers have been expanded to include locating materials, arranging interviews with medical authorities, and reviewing manuscripts on request

The department stands ready to consult with all councils or bureaus on any public relations problem and often lends staff aid in carrying out such projects as publicizing an Association meeting The department assists in preparing the Secretary's Letter and helps in preparing speeches and articles for officers and trustees It furnishes Association news to state and county societies and to THE JOURNAL "PR Doctor," a bimonthly news letter, is prepared and distributed to 2,000 medical public relations leaders Much educational and informational material is prepared for both physicians and the public, and every medium of communication is used to acquaint Americans with medicine's story The department holds an annual public relations conference prior to the A M A Clinical Meeting and a public relations institute each fall At these meetings ideas are exchanged and public relations problems discussed An advisory committee representing state medical associations receives suggestions on public relations programs and needs The department also consults with individual physicians and their medical societies on public relations programs and problems

JOINT QUESTIONNAIRE ON HOSPITAL DATA

The American Medical Association and the American Hospital Association are collaborating in the development of a joint questionnaire that will provide helpful and much needed hospital data this year This project is aimed at bringing about greater uniformity in the reporting of annual hospital statistics that each organization obtains from hospitals Four hundred hospitals have been sent preliminary questionnaires on a trial-run basis Each hospital was requested to indicate its reactions to this effort and to offer advice and counsel to the group working on the project Mailing of the official questionnaire will be made in a few days It will contain four sections Section I—Basic Hospital Data, Section II—Information for use of the American Hospital Association, Section III—Information for use of the American Medical Association, and Section IV—Annual Report on Internships and Residencies

GIFTS TO MEDICAL EDUCATION FOUNDATION

A $100,000 gift from the California Medical Association was received in August by the American Medical Education Foundation Mr John Hunton, executive secretary of the association, said that the donation represents a treasury grant of the CMA and brings California's total AMEF income for 1954 to $117,230, including contributions from 255 individual California physicians This gift elevates California to second place in state income standings of AMEF committees Another outstanding contribution recently received by the foundation was a check in the amount of $7,230 from the Arizona Medical Association, representing a $10 per member dues increase voted for AMEF by the association Arizona and Utah have accepted the Illinois plan as a method of collecting contributions from their state medical society memberships Using the plan for the second year, Illinois still leads the nation in total income of $163,120 The foundation was notified recently that the late Dr Andrew B McGraw of Detroit had bequeathed $5,000 to AMEF in his will, which was probated at Detroit on Sept 13 This was the first such legacy awarded AMEF since its inception in 1951

MEDICAL NEWS

CALIFORNIA

Cancer Conference —The California division of the American Cancer Society will hold a cancer conference Oct 1, 2 to 5 p m , at the Palace Hotel, San Francisco under the chairmanship of Dr Edward M Butt, Los Angeles The following presentations will be made

Recent Advances in Chemotherapy Byron Hall San Francisco
Supervoltage in Cancer Therapy· (*a*) Theories and Advantage of Multi million Voltage Therapy Robert S Stone San Francisco (*b*) Results of the Use of Million Volt Therapy Charles Elbert Grayson Sacramento
Evaluation of Various Cytological Techniques Haig S Aijian Los Angeles.
Radical Surgery in Treatment of Cancer Ian G Macdonald Los Angeles
Serodiagnostic Procedures for Cancer Justin J Stein and Andrew H. Dowdy Los Angeles

The New Proctor Foundation Laboratories —Dedication ceremonies for the new laboratories of the Francis I Proctor Foundation for Research in Ophthalmology, which was established in 1946 by Mrs Proctor in memory of her husband, will be held Sept. 29 to Oct 1 at the University of California School of Medicine, San Francisco These laboratories whose construction was made possible through the generosity of Mr and Mrs Berthold Guggenhime, are in the new medical sciences building, which is nearing completion They will provide facilities for ophthalmologic research in microbiology, pathology, physiological chemistry, and physiological optics Other research activities of the foundation will be conducted in the E S Heller Laboratories On Wednesday afternoon the staff of the department of ophthalmology and of the Proctor Foundation will hold open house at the new laboratories, and on Thursday and Friday a two-day scientific program will be presented at the Morrison Auditorium in Golden Gate Park. The guest speakers will include Sir Stewart Duke-Elder, London, England, A Franceschetti, Geneva, Switzerland Giambattista Bietti, Parma, Italy, Josef Bock, Graz, Austria, Norman Ashton, London, England, M Puig Solanes, Mexico D F, Mexico, Hugh L Armsby, Toronto, Canada, Frederick H Verhoeff and David G Cogan, Boston, Alan C Woods and Jonas S Friedenwald, Baltimore Algernon B Reese, New York Derrick T Vail and Peter C Kronfeld, Chicago, Georgiana M D Theobald, Oak Park Ill , Kenneth C Swan, Portland, Ore Col John H King Jr, Washington, D C , and S Rodman Irvine, Beverly Hills, Calif On Thursday evening Dr Ludwig J von Sallmann, New York, will deliver the ninth Francis I Proctor Lecture

ILLINOIS

Free Isolation Care for Poliomyelitis Patients —Through the Municipal Contagious Disease Hospital and the Cook County Hospital, free care for poliomyelitis patients is offered during the isolation period, which is presently seven days, and thereafter until temperature is normal for 24 hours Should there be need for more hospital facilities than can be provided through these two hospitals the Cook County chapter National Foundation for Infantile Paralysis Inc , will assist families in paying for medical care administered through other hospitals if they themselves are unable to meet this expense It is the policy of the Cook County chapter to pay only for care that is not otherwise provided without cost through community resources

Chicago

Personal —Dr Maurice H. Cottle, head, department of otolaryngology, Chicago Medical School, has been invited by the department of otolaryngology of the Johns Hopkins University School of Medicine, Baltimore, to give a course on surgery of the nasal septum, Sept 25 to Oct. 2

Series of Cancer Lectures.—Northwestern University Medical School, Chicago, will present a series of weekly lectures on Wednesdays, 5 to 6 p m , Oct 6 to Nov 17, in the auditorium of Veterans Administration Research Hospital, 333 E Huron St The lectures which are open to the medical profession, will be given on the following dates

Oct. 6 Differentiating and Chromosomal Influences in the Growth of Cancers Stanley P Reimann Philadelphia.
Oct. 13 Treatment of Disseminated Mammary Cancer Charles P Huggins, Chicago
Oct. 20 Treatment of Leukemia, Joseph H Burchenal New York.
Oct 27 Problem of In Situ Cancer James W Reagan Cleveland.
Nov 3 Effect of Administration of Exogenous Steroids and Endogenous Steroid Withdrawal on Human Mammary Cancer Samuel G Taylor III Chicago
Nov 10 Experimental Cancer Harry Goldblatt, Cleveland.
Nov 17 Nature of Cancer· Parthenogenesis in Somatic Cells Paul E. Steiner Chicago

IOWA

Institute on Gerontology —An institute on gerontology and the general practitioner will be held at the Continuation Center, State University of Iowa campus at Iowa City, Oct. 1 The sessions will open with the following panel

General Personality Characteristics of the Aged Wilma T Donahue, Ph D Ann Arbor Mich.
Mental Health of the Aged Wilbur R. Miller Iowa City
Intellectual Changes in the Aged Woodrow W Morris Ph.D Iowa City

At 2 30 p m Dr William B Kountz, St Louis, will present 'Scientific Aspects of Gerontology and Its Application to the Practice of Medicine " after which Dr Franklin H Top Iowa City, will discuss Infectious Diseases in Old Age" and Dr Cletus L Krag, Washington D C , will consider "Public Health Aspects of the Aging Problem After the 6 o clock dinner at the Veterans Administration Hospital, Dr Edward L Bortz, Philadelphia, will have as his topic "Gerontology—Its Relation to Medicine and Society "

LOUISIANA

Dr Burch Appointed to Heart Council —Dr George E Burch, chairman, department of medicine, Tulane University of Louisiana School of Medicine, New Orleans, has been appointed to serve on the National Advisory Heart Council. Dr Burch has done extensive research in cardiovascular disease From 1949 through 1953, he served on the cardiovascular study section, U S Public Health Service He was formerly affiliated with Charity Hospital of Louisiana and the Rockefeller Institute Hospital in New York and in 1939 received a Commonwealth Fund fellowship award He has served in the Louisiana national guard and the medical reserve corps of the U S Army As a member of the National Advisory Heart Council, Dr Burch will serve in a group of 15 leaders in medicine science, education, and public affairs to review requests from nonfederal institutions and persons for research and teaching grants

MASSACHUSETTS

Institute of Psychiatric Treatment.—The Institute of Psychiatric Treatment will hold a course on methods of treatment in psychiatry at the Boston State Hospital, Boston, Sept 30 to Oct. 2. There will be lectures on electroshock, insulin therapy, psychotherapy, psychosurgery psychological testing, and the use of drugs Registration fee is $35 Correspondence may be addressed to Dr Leo Alexander, 433 Marlborough St., Boston.

MICHIGAN

State Medical Meeting at Detroit.—The Michigan State Medical Society will hold its 89th annual session at the Sheraton-Cadillac Hotel, Detroit, from Sept. 29 to Oct. 1 under the presidency of Dr L. W Hull, Detroit. Wednesday evening the annual Biddle lecture, "The United Nations· Our Hope for the Future " will be presented by Dr Charles W Mayo, Rochester, Minn. On

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Physicians are invited to send to this department items of news of general interest for example those relating to society activities new hospitals education and public health Programs should be received at least three weeks before the date of meeting

Friday, 9 a m, Dr Walter A Fansler, Minneapolis, will deliver the Beaumont Memorial lecture, "Indications for Roentgenological Studies of the Colon and Significance of Roentgenological Findings" Other out of state speakers and their first presentations include

Max M Zinninger Cincinnati *Surgical Treatment of Patients with Jaundice*
George Crile Jr Cleveland Changing Trends in Abdominal Surgery
William L Estes Jr Bethlehem Pa Responsibility of the Surgeon in Restoration of the Industrial Injured to His Greatest Possible Earning Power
Fletcher H Colby Boston Early Carcinoma of the Prostate Diagnosis and Treatment
Charles A Janeway Boston Control of Infectious Diseases
James H Allen New Orleans Ocular Manifestations of Leprosy
Roy W Mohler Philadelphia Management of Labor at Term
Wilson G Smillie New York *Role of Preventive Medicine in Modern Medicine*
W Paul Holbrook Tucson *Ariz Treatment of Rheumatoid Arthritis*
Richard B Capps Chicago Acute *Viral Hepatitis* Epidemiology Diagnosis and Treatment
Francis L Lederer Chicago General *Practitioner's* Role in Otolaryngological Management
Arthur P Noyes Norristown Pa Psychiatry and the General Practitioner
Carl P Huber Indianapolis Abruptio Placentae
Frederick H Falls Oak Park Ill Diagnosis and Treatment of Carcinoma of the Ovary
L Emmett Holt New York Celiac Disease—What Is It?
Joseph H Pratt Jr Rochester Minn Diagnosis and Surgical Treatment of Acute Gynecologic Conditions
Francis E Senear Chicago Advances in Dermatologic Therapy
James E Eckenhoff Philadelphia Treatment of Barbiturate Poisoning
Paul A O'Leary Rochester Minn *Nodular and Ulcerative Lesions* of the Lower Extremities
Israel Davidsohn Chicago Hodgkin's Disease
Robert L Levy New York Restrictions for Cardiacs—Necessary and Needless
Isidore Snapper Brooklyn N Y Customs and Disease
Chris J D Zarafonetis Philadelphia Para Aminobenzoic Acid in the Treatment of Scleroderma and Other Disorders Associated with Excessive Fibrosis
Tague C Chisholm Minneapolis Accidents in Childhood—The Number One Killer

On Wednesday evening there will be a public meeting at which Dr Hull will deliver the presidential address and Dr Robert H Baker Pontiac, will be inducted *as the new president* The Michigan State Medical Society *will be host at State Society Night,* Thursday, for a cabaret-style dance and floor show Daily discussion conferences have been scheduled from 12 noon to 1 p m The woman's auxiliary will hold its meetings simultaneously with those of the state society

NEW YORK

Emergency Training Institutes—A series of emergency medical services training institutes will be held this fall in nine upstate localities by the New York State Health Department for the New York State Civil Defense Commission Three new medical services programs will be presented (1) a training program for nurses in civil defense for all types of emergency medical installations, (2) training for medical messengers and messenger leaders, and (3) a training program for assisting at postattack births if no physician is available (approved by the Medical Society of the State of New York) In addition, a session will be held on organizing reserve (continuing) training for persons who have completed basic courses Institutes are scheduled as follows

Sept 29 Rochester and Support Area, Rochester Academy of Medicine Rochester
Oct 1 Syracuse and Support Area, St Joseph's Hospital, Syracuse
Oct 8, Support Area of New York City, Bear Mountain Inn, Bear Mountain
Oct 25, Schenectady, Albany Troy, and Support Areas, Fire Station 10, Schenectady
Oct 28 Erie County and Support Area, Gowanda State Homeopathic Hospital, Helmuth
Nov 4, Nassau County and Support Area, Meadowbrook Hospital, Hempstead, L I
Nov 9, Niagara Falls and Support Area, Y W C A, Niagara Falls

OHIO

University News—Dr Henry E Wilson Jr, formerly assistant professor of medicine, Northwestern University Medical School, Chicago, has been appointed associate professor and vice-chairman of the department of medicine, Ohio State University College of Medicine, Columbus, effective Oct 1 ——Dr William H Havener has been made assistant professor in the department of ophthalmology

Medicolegal Course—"Medical Issues in Legal Cases," a 15 week course designed especially for physicians and lawyers and offered by the Law-Medicine Center at Western Reserve University, Cleveland, opened Sept. 21 with a talk on cancer by Dr Alan R Moritz. The following schedule has been announced

Sept 28, Heart, Harold Feil
Oct 5, Heart, William L Proudfit
Oct 12, Back, Wallace S Duncan
Oct 19, Back, Barry A Friedman
Oct 26 Back Clarence H Heyman
Nov 2 Joints and Extremities, Charles H. Herndon.
Nov 9, Head, Spencer Braden
Nov 16 Head, Frank E Nulsen
Nov 22, Personality Changes—Neuroses, Edward O Harper
Nov 30, Effect of Trauma on Preexisting Conditions William S Clark
Dec 7, Effect of Trauma on *Preexisting Conditions,* Max Miller
Dec 14 Burns and Poisons, Lester Adelson.
Jan 4, 1955, Allergies, William P Garver
Jan 11, Trauma to the Aged, Donald M Glover

OKLAHOMA

Lecture on Viral Research—Dr Harvey Blank, associate medical director of the Squibb Institute for Medical Research, New York, will be *guest speaker for the Tulsa Academy* of General Practice on Sept 27, 6 30 p m, at Hotel Tulsa His subject will be "Clinical Importance of Recent Viral Research" Dr Blank, who was formerly associated with the Medical Sciences National Research Council as a research fellow, served as assistant professor of dermatology and syphilology at the *University of* Pennsylvania School of Medicine, Philadelphia, and more recently as a consultant to the Atomic Energy Commission at Oak Ridge, Tenn Dinner reservations may be made by calling 2-5904 Those who do not wish to attend the dinner are invited to be present for the scientific program at 8 p m All physicians are urged to attend

OREGON

Oregon Heart Association Meeting.—The annual scientific session *of the Oregon Heart Association will be held* Oct. 1 and 2 *at the University of Oregon* Medical School library in Portland Sir Russell Brock, *fellow of the* Royal College of Surgeons, will discuss "Surgical Treatment of *Acquired* Valvular Diseases" and "Surgical Treatment of Pulmonary Valve Stenosis," and, in addition, will conduct a symposium on the selection of patients for cardiac surgery Dr Viking Olov Bjork of the Sabatsberg Hospital in Stockholm will discuss "Left Heart Catheterization" and "Surgical Treatment of Atrial Septal Defects" Dr F H Smirk, clinical professor of medicine, University of Otago, New Zealand, will give papers entitled "Treatment of High Blood Pressure" and "Premature Systoles and Very Premature Systoles." Dr Edward P Sharpey-Schafer, professor of medicine, St. Thomas Hospital Medical School, London, England, will present "Mechanisms Causing *Syncope*" and "Rapid Methods of Assessing Heart Failure" *All physicians in Oregon are invited to* attend There is no registration fee For *information,* contact the Oregon Heart Association, 905 S W Taylor St, Portland

PENNSYLVANIA

Annual Meeting on Cancer—The 10th annual meeting and training school of the Pennsylvania division, American Cancer *Society,* will be held at the William Penn Hotel, Pittsburgh, Oct 1 to 3 Dr Robert A Moore of the University of Pittsburgh will deliver an address, "The Value of Basic Research in the Health Area," Friday evening The professional program, which will be open to physicians only, will include the following presentations, *Saturday, from* 10 a m to 1 15 p m

Cancer of the Colon, Robert M Zollinger Columbus Ohio
Diagnosis of *Stomach* Cancer, Leo G Rigler, Minneapolis
Cancer of *the Lung, William* W G MacLachlan, Pittsburgh

Also scheduled for 9 to 10 a m and 1 30 to 3 30 p m are preview showings of three kinescopes of the American Cancer Society's telecolor clinic series of closed-circuit color television conferences produced last winter There will be an exhibit of medical drawings by Dr Frank H Netter, East Norwich, N Y, medical illustrator for Ciba Pharmaceutical Products, relating to the topics of the three papers to be presented, and a display of five professional exhibits prepared by the American Cancer Society

Philadelphia

Lectures on Mass Disasters—The department of public health and preventive medicine of Temple University School of Medicine is conducting lectures on emergency measures in mass disasters due to war in relation to civil defense, for the faculty and staffs of Temple University and affiliated hospitals, junior and senior classes, and members of the Philadelphia County Medical Society, in the auditorium of the school of medicine, Broad and Ontario streets, Saturdays promptly at 12 30 p m On Sept 11 Dr J Richard R Bobb presented a sound motion picture film Operation Ivy" (hydrogen bomb), and on Sept 18 Dr Richard A *Kern spoke on general aspects and the role of the practicing* physician, including the emergency treatment of heat stroke and exhaustion The following programs have been scheduled

Sept. 25 Robert Robbins Atomic and Hydrogen Bombs Effects of Radiant Energy on Human Beings
Oct 2 Theodore G Anderson Ph D Biologic Warfare
Oct. 9 J Richard R Bobb Chemical Warfare
Oct. 16 H Taylor Caswell Emergency Treatment of Chest and Abdominal Injuries
Robert M Bucher Emergency Treatment of Wounds and Burns.
Oct. 23 Michael Scott Emergency Treatment of Skull Injuries
Oct. 30 John R Moore Emergency Treatment of Sprains Fractures *and Dislocations.*
Nov 6 R. Robert Tyson Emergency Treatment of Trench Foot and Frostbite
Nov 20 LeRoy W Krumperman Emergency Treatment of Drowning.
Dec 4 John A Kolmer Public Health and Epidemiological Aspects of Mass Disaster
Dec 11 Howard W Baker Role of the Hospital in Mass Disaster

SOUTH CAROLINA

Society News—Officers of the South Carolina Obstetrical and Gynecological Society include Dr Frank B C Geibel, Columbia, president, and Dr Lawrence L Hester Jr, Charleston, secretary

General Practitioners Meet in Columbia—The annual scientific assembly of the South Carolina Academy of General Practice will be held at the Hotel Columbia in Columbia Sept 28 and 29 After the address of welcome by Dr David F Adcock, Columbia, president, Columbia Medical Society, Tuesday, 9 20 a. m, the following program will be presented

Care of the Premature Infant Philip A. Mulherin Augusta, Ga.
Arthritis Russell L. Cecil New York.
Diagnosis of Cervical Carcinoma Lawrence L Hester Jr Charleston

The luncheon speaker will be Dr John R Bender, Winston-Salem, N C, vice president of the American Academy of General Practice "Antibiotic Antagonism and Synergism" by Dr Charlton deSaussure, Charleston, will be followed by panel discussion of Hemorrhage in Late Pregnancy" Dr William B Hildebrand, Menasha, Wis, president, American Academy of General Practice, will be the banquet speaker Wednesday morning Dr Mulherin will discuss 'The Allergic Child" Dr deSaussure, "Cortisone and ACTH in Infectious Diseases", and Dr Cecil "Gout." After luncheon, at which Dr Thomas R Gaines Anderson, president, South Carolina Medical Association, will be speaker, Dr John T Cuttino, dean, Medical College of South Carolina, Charleston, will serve as moderator for a round table discussion in which all visiting lecturers will participate

TEXAS

Lecture Clinic for Physicians and Ministers.—A lecture-clinic for physicians and ministers, Serving the Suffering' will be presented in the First Methodist Church, Lubbock Oct. 7 and 8 by the director s committee on religious activity of the Methodist Hospital Lubbock. The speakers will be Dr Gilbert H Marquardt, associate professor of medicine, Northwestern University Medical School, Chicago, and Russell L. Dicks, D D On Thursday 3 p m, they will discuss the role of the physician and the minister respectively in helping persons who suffer from feelings of anxiety hostility, and guilt At 8 p m. they will speak on how ministers (or physicians) help or hurt the physician (or minister) with the sick, giving suggestions for closer cooperation Friday morning they will discuss work with alcoholics education prevention, and treatment, and Friday afternoon they will consider the physician s and the minister s role in caring for the *dying. Dr* Marquardt will discuss what and when to tell the patient.

WEST VIRGINIA

Symposium on Office Procedures—A symposium on office procedures by the general practitioner, sponsored by the West Virginia Academy of General Practice in cooperation with Lederle Laboratories division of American Cyanamid Company, will be held at the Chancellor Hotel, Parkersburg, Oct. 3 Dr Randall Connolly, Parkersburg, will serve as moderator for the following program at 10 a m

Office Anesthesia Max S Sadove Chicago
Antepartal Management of the Primiparous Woman, R. Gordon Douglas New York.
Cardiac Auscultation Illustrated by Endless Loop Tape Recordings *George D Geckeler Philadelphia*

A panel discussion will follow Dr Jack J Stark, Parkersburg, will moderate the afternoon program, 2 30 p m.

Sigmoidoscopy and Other Office Proctology Alejandro F Castro Washington D C.
Hormone Therapy in Gynecologic Conditions, Edwin M. Robertson Kingston Ontario Canada.
Office Urology Russell D Herrold, Chicago

A question and answer period is also planned to follow the formal program Lederle Laboratories will be host at a luncheon *at 12 30 p m and also at the cocktail party scheduled for 5* o clock An invitation has been extended by the academy to all members of the West Virginia State Medical Association and their wives to attend the meeting There will be no registration fee

WISCONSIN

Chest Physicians Meet in Milwaukee—The Wisconsin chapter of the American College of Chest Physicians will hold its annual *meeting Oct 3 at the Schroeder Hotel, Milwaukee The following* program will be presented

Differential Diagnosis of Carcinoma of the Lung, Herman J Moersch Rochester Minn.
Management of Cardiac Emergencies Howard L. Correll Milwaukee
Inhalation Therapy in Bronchopulmonary Diseases Edwin R. Levine Chicago
Benign Tumors of the Chest, William H. Lees Chicago
Clinical Aspects of Hypertension of the Greater and Lesser Circulation Charles W Crumpton Madison.

GENERAL

Nathan Savitsky Laboratory in Neurophysiology—To honor the memory of Dr Nathan Savitsky, funds are being collected for the establishment of a Nathan Savitsky Laboratory in Neurophysiology at the Albert Einstein College of Medicine (now under construction) of Yeshiva University, Bronx, New York Communications should be addressed to Dr William Karliner, 270 Park Ave, Bldg. A, Room 717, New York.

Pediatricians Meet in Chicago—The American Academy of Pediatrics will hold its annual meeting at the Palmer House, Chicago, Oct. 4 to 7 The general meeting, preceded by seminars Oct 2 and 3, will open Monday with a symposium on the management of long-term illness in children, for which Dr Richard E Wolf Cincinnati, will be chairman Other symposiums scheduled include

A Program for Parenteral Fluid Therapy in Pediatrics Dr Charles U Lowe Buffalo chairman
Diseases of the Liver in Infancy and Childhood Dr Sydney S Gellis Boston chairman
Clinical Laboratory Diagnosis Dr Harry Shwachman Boston chairman.
Surgical Problems in Infancy and Childhood, Dr Orvar Swenson Boston chairman
The Pathophysiology of Diseases of the Blood in Infancy and Childhood Dr Wolfgang W Zuelzer Detroit, chairman

Wednesday afternoon scientific awards will be made as follows Mead Johnson first award to Dr Robert E Cooke, New Haven Conn, Mead Johnson second award to Dr Vincent Charles Kelley, Salt Lake City; and Borden award to Dr Paul Gyorgy, Philadelphia. Thursday afternoon will be devoted to clinics at the Research and Educational Hospitals, University of Illinois, Bobs Roberts Memorial Hospital for Children, University of Chicago children s division, Cook County Hospital and Children s Memorial Hospital Various alumni luncheons and a dinner will be held Monday (alumni of pediatric department, University of Cincinnati College of Medicine, Buffalo Children s

Hospital, and Children's Memorial Hospital, Svithiod Club) The annual banquet Tuesday will be preceded by a reception from 6 to 7 30 p m The alumni of Sarah Morris Hospital for Children will hold their luncheon Wednesday, and Duke University alumni will have a dinner the same day, and committee luncheons will be held on Tuesday Thursday afternoon the committee on accident prevention will hold an open meeting on accident prevention activities, including poison control centers

Meeting of Trudeau Society—*The interim scientific session of the American Trudeau Society at the Hotel New Yorker, New York City, Nov 17, 9 a m to 5 p m, will be open to physicians interested in pulmonary diseases, internal medicine surgery, and pediatrics and to scientists in allied laboratory disciplines Abstracts of material, not exceeding 200 words, may be submitted in quadruplicate typewritten double spaced, before Oct 1, addressed to Dr William B Tucker, Chairman, Interim Scientific Session Program Committee, Veterans Administration Hospital, Durham N C Titles may be submitted on any subject in pulmonary diseases, from either a laboratory or a clinical standpoint Not more than 12 minutes will be allotted for each presentation Adequate time for discussion of each paper has been planned Manuscripts need not be submitted for publication Investigative work in progress may be reported, but papers should represent original investigative work Inquiries as to further details will be welcome*

Meeting of Vermont and New Hampshire State Medical Societies—*The Vermont State Medical Society and the New Hampshire Medical Society and the women's auxiliaries will hold their fifth annual combined meeting at the Mount Washington Hotel, Bretton Woods N H, Oct 3 to 5 Dr Woodhull S Hall, Bennington, is president of the Vermont society and Dr Albert E Barcomb, Rochester of the New Hampshire society The first section, scientific sessions, will be presented Sunday at 5 p m by the New Hampshire Heart Association and will deal with cardiac arrest and ventricular fibrillation, comparison of the displacement ballistocardiogram and impedance plethysmogram, atrioventricular aneurysm of the kidney, and cardiac arrhythmia due to digitalis excess The subject of the second session, to be presented at 8 30 p m by the heart association, is "Surgical Management of Valvular Lesions Other Than the Mitral Valve" A discussion on this subject will be presented by Dr Dwight E Harken, Boston The general session will open Monday at 9 a m Guest speakers include*

Charles G Child III Boston Portal Venography
Lewis Dexter Boston Mitral Stenosis and Mitral Insufficiency—Their Relative Importance in the Same Patient
Thomas Hale Ham Cleveland Studies of the Spleen in Hemolytic Anemia
Pearce Bailey Washington D C The Research Team Approach to Neurological Diseases
George F Wilkins, Boston Handling of Industrial Accident Cases Employment of Handicapped and Aging Workers

On Tuesday the section on anesthesiology will present a panel discussion, "Unconscious Patient", the section on general practice, a panel discussion, "Recent Advances in Common Usage of Antibiotics" (Dr Paul A Bunn, Syracuse, N Y, moderator), and the section on radiology, group discussions about "The Patient-Radiologist-Technician, Fees and Other Matters" and "Hospital-Insurance Company Relationships," which will be followed by a film-reading session The section on orthopedics will have as guest speaker Dr Malvin F White, Boston, who will describe "The Correlation of Plastic Surgery to Orthopedic Problems" Dr William Berenberg, Boston, will talk on cerebral palsy before the section on pediatrics, and Dr John P Merrill, Boston, will discuss "Treatment of Chronic Renal Failure" at the section meeting on urology Dr O Martenson-Larsen, Denmark, will address the section on psychiatry After presentation of "Changing Attitudes Toward Emotional Problems" by Herbert A Carroll, Ph D, University of New Hampshire, Durham, the section on internal medicine will present a panel discussion, "Total Care of the Patient with Heart Disease," for which Dr Dexter will serve as moderator Dr C Stuart Welch, Albany, N Y, will have as his topic "Management of Massive Hemorrhage from the Upper Gastrointestinal Tract" when he addresses the section on surgery The golf tournament will be held Saturday afternoon and Sunday morning

Prevalence of Poliomyelitis—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States and its territories and possessions in the weeks ended as indicated

Area	Aug 28, 1954		
	Paralytic Type	Total Cases Reported	Aug 29 1953, Total
New England States			
Maine	3	8	23
New Hampshire		6	7
Vermont	3	3	5
Massachusetts	22	61	33
Rhode Island		10	20
Connecticut		28	25
Middle Atlantic States			
New York	39	130	216
New Jersey	21	44	65
Pennsylvania		89	85
East North Central States			
Ohio	43	119	160
Indiana	17	51	83
Illinois	44	136	171
Michigan	62	156	181
Wisconsin	9	36	63
West North Central States			
Minnesota	17	42	185
Iowa	37	92	61
Missouri	10	20	57
North Dakota	2	7	20
South Dakota		9	11
Nebraska	25	62	16
Kansas	15	49	37
South Atlantic States			
Delaware	2	3	8
Maryland	6	12	37
District of Columbia	3	13	2
Virginia	19	41	65
West Virginia	6	22	33
North Carolina	16	47	44
South Carolina	3	13	7
Georgia	18	39	22
Florida	18	52	16
East South Central States			
Kentucky	26	44	23
Tennessee	4	32	30
Alabama	10	16	12
Mississippi		26	18
West South Central States			
Arkansas	6	18	16
Louisiana	11	18	13
Oklahoma	7	83	31
Texas	34	168	63
Mountain States			
Montana	1	9	16
Idaho		8	2
Wyoming	3	14	
Colorado	21	32	13
New Mexico	9	21	5
Arizona	2	12	21
Utah		16	20
Nevada		7	2
Pacific States			
Washington	9	21	20
Oregon	3	15	17
California	125	297	181
Territories and Possessions			
Alaska	2	11	1
Hawaii	8	3	
Puerto Rico			1
Total	735	2,224	2 239

PHILIPPINE ISLANDS

Pilot Project on *Bilharziasis*—An Indian expert on public health has arrived in Manila to lead a pilot project for the control of bilharziasis, undertaken by the government of the Philippines with the aid of the United Nations expanded program of technical assistance, the World Health Organization, and the U S Foreign Operations Administration The team leader, Mohammed Farooq, D P H, who will remain in the Philippines for two years on a WHO assignment, will have a trained staff of 40 working with him at the technical center of the Philippines schistosomiasis control pilot project It is estimated that bilharziasis affects about 100 million persons in southeast Asia, Africa, the western Pacific, the eastern Mediterranean, and Central and South America In Egypt alone, it is said to affect 10 million persons and cause an economic loss of about 230 million dollars a year On his way to the Philippines, Dr Farooq visited the bilharziasis control project being carried out on a special tract of land in Calioub Province, Egypt, about 20 miles north of Cairo, by the Egyptian Ministry of Health with the collaboration of WHO Before accepting his WHO assignment, Dr Farooq was medical officer for Dewbury, England He was formerly deputy-general of the medical and health services of Hyderabad State, India A former Rockefeller Foundation fellow from 1946 to 1947, he studied public health conditions in the Philippines, Hawaii, and the United States

FOREIGN

Streptomycin Anniversary Celebration—The 10th anniversary of the discovery of streptomycin will be observed at a special session, Sept 27, of the International Tuberculosis Conference, which will be held in Madrid Spain, Sept 26 to Oct 2 under the auspices of the International Union Against Tuberculosis (The Journal, July 3, 1954, p 917) Selman A Waksman, Ph D., of New Brunswick, N J, discoverer of streptomycin, Dr John D Steele of Milwaukee, president of the American Trudeau Society, medical section of the National Tuberculosis Association, and Dr Nicholas D D Esopo of the Veterans Administration Hospital, West Haven, Conn, will be among the speakers at the conference

CORRECTION

Dr Otto Barkan.—In the minutes of the Section on Ophthalmology in The Journal, Aug 7, 1954, page 1350, in the announcement of the award of the prize in ophthalmology, Dr Otto Barkan s address was given as St Louis, whereas it should have been San Francisco, where Dr Barkan and his father have practiced for many years

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr George F Lull 535 North Dearborn St., Chicago 10 Secretary

1954 Clinical Meeting Miami Florida, Nov 29 Dec. 2
1955 Annual Meeting Atlantic City, N J, June 6-10
1955 Clinical Meeting Boston Nov 29 Dec. 2
1956 Annual Meeting, Chicago, June 11 15
1956 Clinical Meeting Seattle, Nov 27 30

Academy of Psychosomatic Medicine, New York, Oct. 8-9 Dr Ethan Allan Brown 75 Bay State Road Boston 15 Secretary

American Academy for Cerebral Palsy Williamsburg Inn Williamsburg Va. Nov 4-6 Dr Harry E Barnett, 116 South Michigan Blvd Chicago 3 Secretary

American Academy of Pediatrics Palmer House Chicago Oct. 4-7 Dr E. H Christopherson 610 Church St., Evanston Ill., Secretary

American Association of Medical Clinics Jung Hotel New Orleans Nov 12 14 Dr Arthur H Griep 420 Cherry St Evansville Ind Secretary

American Association of Medical Record Librarians Sheraton-Cadillac Hotel Detroit, Oct. 4-8 Miss Doris Gleason 510 N Dearborn St. Chicago 10 Executive Director

American Association for the Surgery of Trauma Hotel Claridge Atlantic City N J Nov 11 13 Dr James K. Stack, 700 North Michigan Blvd Chicago 11 Secretary

American Cancer Society Hotel Roosevelt New York Oct. 17 24 Dr Charles S Cameron 47 Beaver St. New York 4 Medical Director

American Clinical and Climatological Association Lake Placid Club Lake Placid N Y Oct. 14-16 Dr Marshall N Fulton 124 Waterman St Providence 6 R I Secretary

American College of Gastroenterology The Shoreham Washington D C., Oct. 25-30 Dr A Xerxes Rossien 33 West 60th St., New York 23 Secretary

American College of Surgeons Convention Hall Atlantic City N J Nov 14-19 Dr Michael L Mason 40 East Erie St Chicago 11 Secretary

American Dental Association Miami Fla. Nov 8 11 Dr Harold Hillenbrand 222 East Superior St. Chicago 11 General Secretary

American Fracture Association Shamrock Hotel Houston Texas Oct. 11 14 Dr H W Wellmerling 626 Griesheim Bldg Bloomington Ill. Secretary-General.

American Heart Association Jung Hotel New Orleans Oct. 26-30 Mr Irving Hexter 44 East 23rd St., New York 10 Secretary

American Public Health Association Memorial Auditorium Buffalo N Y., Oct. 11 15 Dr Reginald M Atwater 1790 Broadway New York 19 Executive Secretary

American Society of Anesthesiologists Netherland Plaza Hotel Cincinnati, Oct. 25-30 Dr J Earl Remlinger Jr., 188 West Randolph St. Chicago 1 Secretary

American Society for the Study of Arteriosclerosis Sheraton Hotel, Chicago Oct. 31 Nov 1 Dr O J Pollak, P O Box 228 Dover Del., Secretary

American Society of Tropical Medicine and Hygiene Hotel Peabody Memphis Tenn, Nov 4-6 Dr John E Larsh Jr Dept. of Parasitology School of Public Health Univ of North Carolina Chapel Hill N C., Secretary

American Therapeutic Society The Chase Hotel St. Louis Nov 4-7 Dr Oscar B Hunter 915 Nineteenth St N W Washington D C. Secretary

Association of American Medical Colleges French Lick Springs Hotel French Lick, Ind., Oct. 17 20 Dr Dean F Smiley 185 N Wabash Ave Chicago 1 Secretary

Association of Life Insurance Medical Directors of America Royal York Hotel Toronto Canada Oct 12 14 Dr Henry B Kirkland P O Box 594 Newark, N J., Secretary

California Academy of General Practice Statler Hotel, Los Angeles Oct 24-27 Mr Wm W Rogers 450 Mission St. San Francisco Executive Secretary

Central Association of Obstetricians and Gynecologists Hotel Jefferson St. Louis Oct. 7 9 Dr Harold L. Gainey Suite 602, 116 S Michigan Ave Chicago 3 Secretary

Central Society for Clinical Research Drake Hotel Chicago Oct 29 30 Dr Robert H Ebert 950 East 59th St Chicago 37 Secretary

Clinical Orthopaedic Society Sheraton Hotel Chicago Oct. 7 9 Dr John H Moe 825 Nicollet Ave Minneapolis Secretary

Congress of Neurological Surgeons The Waldorf Astoria New York, Nov 4-6 Dr Bland W Cannon 1092 Madison Ave., Memphis Tenn Secretary

Delaware, Medical Society of Dover Oct. 11 13 Dr Norman L. Cannon 1208 Delaware Ave Wilmington Executive Secretary

District of Columbia Medical Society of the Hotel Shoreham Washington D C Nov 1-3 Mr Theodore Wiprud 1718 M St. N W Washington D C Secretary

Gulf Coast Clinical Society Edgewater Park, Miss Oct. 21-22 Dr F C Minkler Pascagoula Miss Secretary

Indiana State Medical Association Murat Temple Indianapolis Oct. 26-28 Mr James A Waggener 23 East Ohio St. Indianapolis 4 Executive Secretary

Interstate Post Graduate Medical Asssociation of North America Municipal Auditorium Minneapolis Nov 1-4 Dr Erwin R. Schmidt 1300 University Ave Madison 6 Wis Secretary

Inter Society Cytology Council, Statler Hotel Boston Nov 12 13 Dr John B Graham 32 Fruit St. Boston Chairman Program Committee

Kansas City Southwest Clinical Society Kansas City Mo Oct. 4-7 Dr Ira C Layton 306 E Twelfth St. Kansas City 6E, Mo Secretary

Michigan State Medical Society Sheraton-Cadillac Hotel Detroit Sept. 29-Oct 1 Dr L. Fernald Foster 606 Townsend St. Lansing 15 Secretary

Midwestern Section of American Federation for Clinical Research Thorne Hall Auditorium Northwestern University Medical Campus Chicago Oct 28 Dr R L. Grissom Univ of Nebraska College of Medicine Dept. of Internal Medicine Omaha 5 Secretary

National Association for Mental Health Hotel Statler New York Oct 23 25 Mr Robert M Heininger 1790 Broadway New York 19 Executive Director

National Proctologic Association Maryland Hotel Chicago Oct. 7 9 Dr George E Mueller 59 E Madison St. Chicago 2, Executive Secretary

National Rehabilitation Association Baltimore Oct. 24-27 Mr E B Whitten 514-16 Arlington Bldg 1025 Vermont Ave N W Washington D C. Executive Director

New Hampshire Medical Society Mt. Washington Hotel Bretton Woods Oct. 3 5 Dr W H Butterfield 18 School St. Concord Secretary

Oklahoma City Clinical Society Conference, Oklahoma City Oct. 25-28 Dr Charles E. Leonard 512 Medical Arts Bldg. Oklahoma City 2, Secretary

Omaha Mid-West Clinical Society Paxton Hotel Omaha Oct. 25 28 Dr Louis E Moon 1031 Medical Arts Bldg Omaha 2 Secretary

Oregon State Medical Society Heathman Hotel Portland Oct 13 16 Dr Charles E Littlehales 1115 S W Taylor St. Portland 5 Executive Secretary

Pennsylvania Medical Society of the State of Bellevue Stratford Hotel Philadelphia Oct. 17 22 Dr Harold B Gardner 230 State St. Harrisburg, Secretary

Post-Graduate Clinic Michigan Academy of General Practice Sheraton-Cadillac Hotel Detroit, Nov 10-11 Dr F P Rhoades 970 Maccabees Bldg. Detroit 2 Chairman

Regional Meetings American College of Physicians

- Midwest, Indianapolis Claypool Hotel Oct. 9 Dr Wendell A Shullenberger 3470 Central Ave., Indianapolis Chairman
- New England Hartford Conn Oct. 22. Dr John C. Leonard 80 Seymour St. Hartford Conn. Chairman.
- New Jersey Newark, Nov 3 Dr Edward C. Klein Jr 6 South Kingman Rd South Orange N J., Governor

Southeastern Edgewater Gulf Hotel, Edgewater Park, Miss, Oct 15 16 Dr E Dice Lineberry, 1529 N 25th St, Birmingham 4, Ala, Governor

Southern Medical Association, St Louis Nov 8 11 Mr C P Loranz, 1020 Empire Bldg, Birmingham 3, Ala, Secretary

Southern Society of Cancer Cytology St Louis, Nov 8 11 Dr J Ernest Ayre, 1155 N W 14th St, Miami, Fla, Secretary

Southwestern Medical Association Hotel Paso del Norte, El Paso, Texas Nov 17-19 Dr Celso C Stapp, 800 Montana St El Paso, Texas Secretary

The Constantinian Society, The Broadmoor Colorado Springs Colo, Sept 26 29 Dr C J Shook, P O Box 1035 36, Toledo 1, Ohio Secretary

Vermont State Medical Society Mt Washington Hotel Bretton Woods N H Oct 3 5 Dr James P Hammond 337 South St Bennington, Secretary

Virginia Medical Society of Shoreham Hotel Washington, D C, Oct 31 Nov 3 Mr Robert I Howard 1105 W Franklin St Richmond Executive Secretary

Wisconsin State Medical Society of Hotel Schroeder Milwaukee, Oct 5 7 Mr Charles H Crownhart 704 E Gorham St Madison 3, Secretary

FOREIGN AND INTERNATIONAL

Commonwealth Health and Tuberculosis Conference, Royal Festival Hall London England June 21 25 1955 Mr J H Harley Williams, Tavistock House North Tavistock Square London, W C 1, England, Secretary General

Conference of International Union Against Tuberculosis Madrid Spain Sept 26 Oct 2 1954 Secretariat Escuela de Tisiologia Ciudad Universitaria Madrid Spain

Conference of the Solvay Institute of Sociology, Université Libre de Bruxelles Brussels Belgium Oct 18 23 1954 For information write Assistant to the Secretary A Dorsinfang Smets Solvay Institute of Sociology Parc Leopold Brussels 4 Belgium

Congress of International Association of Applied Psychology London England July 18 23 1955 Dr C B Frisby, National Institute of Industrial Psychology 14 Welbeck St London W 1 England, President

Congress of the International Diabetes Federation Cambridge, England July 4 8 1955 Mr James G L Jackson 152 Harley St, London, W 1 England, Executive Secretary General

Health Congress of the Royal Sanitary Institute Bournemouth England April 26-29 1955 Mr P Arthur Wells Royal Sanitary Institute 90 Buckingham Palace Road London S W 1, England Secretary

Inter American Congress of Radiology, Shoreham Hotel Washington, D C U S A April 24 29 1955 Dr Eugene P Pendergrass, 3400 Spruce St Philadelphia 4 Pa U S A Secretary General

Inter American Session American College of Surgeons, Universidad Mayor de San Marcos de Lima, Lima Peru, S A, Jan 11-14, 1955 Dr Michael L Mason 40 East Erie St, Chicago 11, Ill, U S A, Secretary

International Anatomical Congress Paris, France, July 25 30 1955 Prof Gaston Cordier, 45, rue des Saints Pères, Paris 6e, France, Secretary General

International Anesthesia Research Society Ambassador Hotel, Los Angeles, Calif U S A Oct 10-14, 1954 For information write Dr T H Seldon, 102-110 Second Avenue S W, Rochester, Minn, U S A

International Congress of Biochemistry, Brussels Belgium, Aug 1-6, 1955 Prof C Liebecq, 17 Place Delcour, Liege, Belgium, Secretary-General

International Congress of Comparative Pathology, Lausanne Switzerland May 26 31, 1955 Professor Haudurov, 19 rue Cesar Roux, Lausanne Switzerland, Secretary-General

International Congress on Diseases of the Chest, Barcelona, Spain, Oct 4-8, 1954 Mr Murray Kornfeld, 112 East Chestnut St, Chicago 11, Ill, U S A Executive Secretary

International Congress of Military Medicine and Pharmacy, Luxemburg, Luxemburg Nov 7-12 1954 Colonel A R Vernengo Direcion General de Sanidad Militar, Pozos 2045, Buenos Aires, Argentina, S A, Secretary General

International Congress of Plastic Surgery, Stockholm Sweden, Aug 1-4 1955, and Uppsala Sweden, Aug 5 1955 Dr Tord Skoog Uppsala, Sweden General Secretary

International Federation of Medical Student Associations, Rome, Italy, Oct 1-5, 1954 Mr Jorgen Falck Larsen, 12, Kristianiagade, Copenhagen Ø, Denmark General Secretary

International Hospital Congress Lucerne Switzerland, May 30-June 3 1955 Capt J E Stone, International Hospital Federation, 10 Old Jewry, London, E C 2, England Hon Secretary

International Surgical Congress, Geneva, Switzerland, May 23 26, 1955 Dr Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U S A, Secretary-General

Japan Medical Congress, Kyoto University and Kyoto Prefectural Medical College, Kyoto Japan, April 1-5, 1955 Dr Mitsuharu Goto, University Hospital, Medical Faculty of Kyoto University, Kyoto, Japan, Secretary General

Latin American Congress of Physical Medicine, Lima Peru, S A, Feb 14-19, 1955 Dr Cassius Lopez de Victoria, 176 East 71st St, New York 21, N Y, U S A, Executive Director

Medical Journalism Meeting, Exposition Universelle Romaine, Rome, Italy, Sept 30, 1954 Dr H Clegg, B M.A House Tavistock Square, London W C 1, England, Secretary

Pan American Academy of General Practice Lima, Peru, S A Feb 21-25, 1955 Dr Arturo Martinez, 54 East 72nd St, New York 21 N Y, U S A, Secretary

Pan American Homeopathic Medical Congress, Hotel Gloria, Rio de Janeiro Brazil, S A, Oct. 2 13, 1954 Dr Paul S Schantz, 103 West Main St, Ephrata, Pa, U S A, Executive Secretary

Pan Pacific Surgical Congress, Honolulu, Hawaii, Oct. 7 18 1954 Dr F J Pinkerton, Suite 7, Young Bldg, Honolulu 13, Hawaii, Director General

World Medical Association, Rome, Italy, Sept 26-Oct 2, 1954 Dr Louis H Bauer, 345 East 46th St, New York 17, N Y, U S A, Secretary General

EXAMINATIONS AND LICENSURE

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology *Written* July 15 Final date for filing applications is Jan 15 *Oral* Colorado Springs March 27-31 New York City Oct 23 27 Sec, Dr Curtiss B Hickcox, 80 Seymour St Hartford 15

American Board of Dermatology and Syphilology *Oral* Ann Arbor Oct 15 18 To be eligible candidates must have completed thirty-six months of training by October 1 Final date for filing application was May 1 Exec Sec, Miss Janet Newkirk, 129 E 52nd St, New York 22.

American Board of Internal Medicine *Written* Oct 17, 1955 Major centers throughout the United States, the European Command, and the Far East Command Final date for filing applications is May 1 *Oral* New Orleans Feb 1-4 Philadelphia, May 4-5, Washington, D C May 6-7, Portland Ore Sept 14-16, Chicago, Nov 30-Dec 1 Exec Sec, Dr William A Werrell, One West Main St, Madison 3, Wis

American Board of Neurological Surgery· *Oral* New Haven November Final date for filing application is November 1 Sec, Dr Leonard T Furlow 600 S Kingshighway, St Louis 10

American Board of Obstetrics and Gynecology *Part I* Various centers Feb 4 *Part II* Chicago, May 12 20 Deadline for receipt of applications is October 1 Sec, Dr Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6

American Board of Ophthalmology *Practical examinations, 1954* New York City Dec 5 9 Final date for filing applications was July 1 1953 *Written 1955* Various cities Jan 24 25 Final date for filing application was July 1 1954 *Practical examinations 1955* Philadelphia, June 10-15, Chicago Oct 9-14 Sec, Dr Edwin B Dunphy, 56 Ivie Road, Cape Cottage, Maine

American Board of Orthopedic Surgery *Part I* Various locations, spring *Part II Oral and Written* Los Angeles. Jan 26-28 Final date for filing applications for Part II was Aug 15 Sec, Dr Harold A. Sofield 122 South Michigan Ave Chicago 3, Illinois

American Board of Otolaryngology Richmond, Va, March 6-10, 1955 Sec, Dr Dean M Lierle, University Hospital, Iowa City

American Board of Pathology Miami Nov 29 30-Dec 1 Sec., Dr William B Wartman, 303 E Chicago Ave, Chicago 11

American Board of Pediatrics *Oral* Chicago, Oct. 8 10 and New Haven Dec 3-5 Ex Sec., Dr John McK. Mitchell, 6 Cushman Road, Rosemont Pa

American Board of Plastic Surgery Atlanta Ga, Oct 20-22 Final date for filing case reports was June 1 Final date for filing case reports for spring 1955 examination is Jan 1 Corres Sec Miss Estelle E Hillerich, 4647 Pershing Ave, St Louis 8

American Board of Preventive Medicine *Parts I and II* Buffalo Oct. 9 11 Final date for filing applications was July 15 Sec. Dr Ernest L Stebbins, 615 N Wolfe St, Baltimore

American Board of Psychiatry and Neurology New York Dec. 13-14, New Orleans, Feb 28 March 1, 1955, San Francisco mid-October, 1955, New York City, December, 1955 Sec, Dr David A Boyd, 102 110 Second Ave S W Rochester, Minnesota

American Board of Surgery *Part I* Oct 26, March 30 *Part II* Chicago Oct 18, New York City, Nov 11-12, Kansas City Kansas, Dec 13 14, New Orleans, Jan 17-18, Baltimore Feb 14 15 Cincinnati, March 14-15, San Francisco, April 18-19, Boston May 16-17, Philadelphia June 13-14 Sec, Dr John B Flick, 225 S Fifteenth St, Philadelphia 2

The Board of Thoracic Surgery *Written* February Final date for filing applications is Jan 1 Sec, Dr Wm M Tuttle, 1151 Taylor Ave, Detroit 2

DEATHS

Hunt, Harold Napier Lyons ⊕ New York City, born in London, England, May 9, 1882, University of Western Ontario Medical School, London, Ontario, Canada, 1902, L R C P , of Edinburgh, L.R C S , of Edinburgh, and L R F P & S , of Glasgow, Scotland, 1906, lecturer in surgical diagnosis at New York Polyclinic Medical School and Hospital from 1906 to 1912, professor of surgery at Fordham University School of Medicine from 1912 to 1916, director general, co-founder, and life fellow of the International College of Surgeons, served in Boer War for Canada and in Mexican War and World War I as U S Army officer; during World War II served as medical consultant with the British Consulate General and of the British Purchasing Commission, patron of the Smithsonian Institution, Washington, D C , consulting surgeon at the Midtown Hospital, managing editor of the *Medical Mentor* for many years, formerly editor of the *American Journal of Surgery* author of ‘Plastic Surgery, Head, Neck, and Face" published in 1926, died in the St Barnabas Hospital for Chronic Diseases July 16, aged 72, of cerebral hemorrhage, arteriosclerosis, and cystic degeneration of brain

Chesher, Earl Clifford ⊕ New York City, born in Snyder, Okla , Dec 25, 1902, University of Oklahoma School of Medicine, Oklahoma City, 1928, assistant professor of neurology (clinical neurology) Columbia University College of Physicians and Surgeons, specialist certified by the American Board of Psychiatry and Neurology, associate neurologist at the Presbyterian Hospital and Vanderbilt Clinic, neurologist at St. Elizabeth Hospital and consultant neurologist at St Barnabas Hospital, speech aphasia neurologist and psychiatrist at the Veterans Administration Hospital in the Bronx, died in Croton Falls, N Y , April 11, aged 51, of myocardial infarction and coronary artery disease

Young, Roy Carl ⊕ Covington, La , born in Abbeville, Sept. 7, 1895, University of Texas School of Medicine, Galveston, 1918, specialist certified by the American Board of Psychiatry and Neurology member of the Southern Medical Association and Southern Psychiatric Association, fellow and board member of the American Psychiatric Association, for five years treasurer of the National Private Psychiatric Association, for many years medical director and psychiatrist at the Fenwick Sanitarium at one time attending psychiatrist at the Charity Hospital in Shreveport, died June 12, aged 58, of an acute heart attack

Wheeler, Merritt Whitacre ⊕ Stillwater, Minn , born in Albion, Ia., Oct. 27, 1886, University of Minnesota College of Medicine and Surgery, Minneapolis, 1910, specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Oto Laryngology, fellow of the American College of Surgeons, served on the staffs of the St. Luke s, Bethesda, and Charles T Miller hospitals, Gillette State Hospital for Crippled Children in St Paul, and Shriners' Hospital for Crippled Children in Minneapolis, died June 21, aged 67, of coronary occlusion

Ajamian, Harry Mihran, North Bergen, N J , Loyola University School of Medicine, Chicago, 1933, served during World War II, died in the Jersey City Medical Center Aug 4, aged 49, of hemorrhage of the brain and fractured skull caused by a blow on the head

Amiss, James Edward ⊕ Altavista, Va , University of Virginia Department of Medicine Charlottesville, 1930, at one time a medical officer in the regular Navy, served during World War II, affiliated with Lynchburg General and Virginia Baptist hospitals in Lynchburg died July 18, aged 48, of coronary thrombosis

Baker, Looe ⊕ Laguna Beach, Calif , Rush Medical College, Chicago, 1909 member of the Minnesota State Medical Association, formerly on the staff of Fairview Hospital in Minneapolis, died in Newport Beach July 16, aged 70, of cerebral hemorrhage

Baldauf, Herman ⊕ Belvidere, N J , New York Homeopathic Medical College and Flower Hospital, New York, 1913, past president of the Warren County Medical Society; served during World War I, for many years county physician, medical examiner of the Belvidere education system, member of the visiting staff at Warren Hospital in Phillipsburg, formerly affiliated with McKinley Hospital in Trenton, died July 13, aged 67, of arteriosclerotic heart disease

Banker, Silas Jeremiah ⊕ Fort Edward, N Y , University of Vermont College of Medicine, Burlington, 1878, past president of the Washington County Medical Society, of which he was secretary for many years, during World War I member of the medical advisory board of Fort Edward, for many years town physician and school physician, a member of the original board of directors of the former Parks Hospital in Glen Falls, died in Morrisonville July 28, aged 97, of gastric hemorrhage

Barendrick, William Harrison, McMinnville, Ore , University of Oregon Medical School, Portland, 1911, served as mayor, formerly co-owner of the McMinnville Hospital, where he died July 23, aged 72, of cancer of the liver and gallbladder

Barnett, William H ⊕ Abilene, Texas, Memphis (Tenn) Hospital Medical College, 1893, on the staffs of the Hendricks Memorial Hospital and St Ann Hospital, where he died July 18, aged 87, of coronary occlusion and hypostatic pneumonia

Barrow, Charles A., Lancaster, Ohio, Kentucky School of Medicine, Louisville, 1893, formerly county coroner, served on the staff of the Lancaster-Fairfield Hospital, died July 27, aged 89, of heart disease and arteriosclerosis

Bartlett, Glenn Jr ⊕ Falfurrias, Texas, University of Texas School of Medicine, Galveston, 1931, died June 25, aged 50, of coronary thrombosis

Beaty, Samuel Shaver ⊕ England, Ark , St. Louis College of Physicians and Surgeons, 1903, past president of the Lonoke County Medical Society, had done part time work with the state health department, died in Little Rock Aug. 4, aged 77

Calhoun, James Squire, Walnut Springs, Texas, Southwestern University Medical College, Dallas, 1907, past president of the Dallas County Medical Society, died in Glen Rose July 18, aged 72

Capel, Caldwell Bunyan ⊕ Pine Bluff, Ark , University of Arkansas School of Medicine, Little Rock, 1913, on the staff of the Davis Hospital, died in St Vincent s Infirmary, Little Rock, June 12, aged 69, of acute myocarditis with coronary thrombosis

Clark, Webster Kimball ⊕ Greenfield, Mass., Johns Hopkins University School of Medicine, Baltimore, 1909, died July 25, aged 76

Cofer, James Clinton ⊕ Kennett, Mo , University of Tennessee College of Medicine, Memphis, 1930 served during World War II, chief of medicine, Dunklin County Memorial hospital, died June 13, aged 52

Costigan, Leo Hubert, New York City; University and Bellevue Hospital Medical College, New York, 1903, served in France during World War I retired head of the medical claims department of the Travelers Insurance Company· died in the French Hospital July 21, aged 73, of a heart attack.

Coyne, John Anthony, Brookline, Mass , Harvard Medical School, Boston, 1926, served on the staffs of the Boston Lying-In and Massachusetts General hospitals in Boston, died July 31, aged 59

Deacy, John Joseph, Lawrence, Mass Tufts College Medical School, Boston, 1913, served as medical examiner of the Fifth Essex District, and physician to the board of health, affiliated with Lawrence General Hospital, died in Methuen July 25, aged 65, of cerebral hemorrhage

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⊕ Indicates Member of the American Medical Association

Eley, Vernon Lyndon, Ahoskie, N C, Jefferson Medical College of Philadelphia, 1922, on medical staff at Wilson Dam, Tennessee Valley Authority in Florence, Ala, died in Asheville July 17, aged 62, of coronary thrombosis

Erhard, Ernest Lewis ⊕ Armagh, Pa, Western Pennsylvania Medical College, Pittsburgh, 1896, served during World War I, for many years on the staff of the McKeesport Hospital, died June 3, aged 83

Fellows, Albert Whittier ⊕ Bangor, Maine, Harvard Medical School Boston 1917, member of the American Academy of Pediatrics and the New England Pediatric Society, of which he was past president past president of the Bangor-Brewer Tuberculosis and Health Association, served during World War I, for many years served on the water board, chief of pediatric service at Eastern Maine General Hospital, died July 17, aged 62, of acute myocardial infarction

Felts, James Irven, Heber Springs, Ark, Kentucky School of Medicine, Louisville, 1886, died July 3, aged 96

Flack, Samuel William, Utica, N Y, Long Island College Hospital, Brooklyn, 1912, died April 15, aged 64, of myocardial infarction

Fricke, Louis Theodore ⊕ Brooklyn Long Island College Hospital, Brooklyn, 1907, affiliated with Swedish and Caledonian hospitals died in Methodist Hospital, July 24, aged 69, of tuberculosis

Friedenberg, Samuel, Philadelphia, Jefferson Medical College of Philadelphia, 1905, died in the Graduate Hospital of the University of Pennsylvania July 27, aged 75, of carcinoma of the bladder

Golden, Lovette ⊕ Laurel, Miss, Memphis (Tenn) Hospital Medical College, 1911, died July 15, aged 69

Griscom, Isaac Norwood ⊕ Boonton, N J, Hahnemann Medical College and Hospital of Philadelphia, 1904, medical examiner for the Workmen's Compensation Bureau of the State Department of Labor, past president of the Boonton Kiwanis Club, died in St Mary s Hospital, Orange, July 29, aged 74, of chronic myocardial degeneration and arteriosclerosis

Hutchins, Jewell Thomas ⊕ Atlanta, Ga, Emory University School of Medicine, Atlanta, 1925, member of the American Academy of General Practice, on the staffs of the Crawford W Long Memorial and Piedmont hospitals, died July 12, aged 53

Hyatt, William Taylor ⊕ St Louis, St Louis University School of Medicine, 1921, affiliated with Booth Memorial Hospital, died July 5, aged 60, of cancer of the liver

Isaacs, Harry Ezekiel ⊕ New York City, Cornell University Medical College, New York, 1905, treasurer of the American Jewish Physicians' Committee, of which he was a founder, for many years on the staff of the Beth Israel Hospital, died Aug 1, aged 73, of heart failure

Jacobs, George Clinton ⊕ Kentland, Ind, Chicago College of Medicine and Surgery, 1908, died in St Elizabeth's Hospital, Lafayette, May 13, aged 73, of coronary thrombosis

Jacoby, Charles Wesley, Marion, Ohio, Jefferson Medical College of Philadelphia, 1898, formerly on the school board of Morral, died Aug 3, aged 88

Jones, Giles Wilson ⊕ Parrish, Ala, Chattanooga (Tenn) Medical College, 1900, died in July, aged 80

Kahle, Harold H., Leeper, Pa, Eclectic Medical Institute, Cincinnati, 1907, died in the Kane (Pa) Community Hospital June 1, aged 72, of a tumor of the head of the pancreas

Kaufman, LeRoy Vernon ⊕ Freeman, S D, University of Cincinnati College of Medicine, 1941, served during World War II, died suddenly in Sioux Valley Hospital, Sioux Falls, June 8, aged 37

Kebe, George Bengali, Gainesville, Fla, Meharry Medical College, Nashville, Tenn, 1938, died near Fort Pierce May 26, aged 53, in an automobile accident

Labagh, Nicholas Walter ⊕ Mystic, Iowa, Keokuk Medical College, College of Physicians and Surgeons, 1904, died July 10, aged 75, of coronary thrombosis

Lawrence, Arthur Kelton, Columbus, Ohio, Ohio Medical University, Columbus, 1907, died May 19, aged 78, of cerebral hemorrhage

Levine, Arthur Morris ⊕ Brooklyn, Long Island College Hospital, Brooklyn, 1914, died in the Unity Hospital April 17, aged 61, of uremia

Mannel, Gustavus C, Rochester, N Y, University of Buffalo School of Medicine, 1898, died July 21, aged 78, of cancer

Mantz, Russell Livingston ⊕ Cedar Rapids, Iowa, American Medical Missionary College, Battle Creek, Mich, and Chicago, 1901, affiliated with St Luke's and Mercy hospitals, died in Spencer (Ia) Municipal Hospital July 20, aged 79, of chronic glomerular nephritis

Martin, Walton Woolsey ⊕ Pittsburgh, Western Pennsylvania Medical College, Pittsburgh, 1900, examining physician for district draft boards during World Wars I and II, on the staff of St. Francis Hospital, where he died July 25, aged 75, of mesenteric thrombosis

Merle, Elizabeth Helena ⊕ Rochester, N Y, University of Buffalo School of Medicine, 1907, for many years physician for the Monroe County Welfare Department, medical examiner for the Y W C A since 1929, affiliated with the Park Avenue Hospital, died July 17, aged 72, of arteriosclerosis and cardiac disease

Mudroch, Joseph Anton ⊕ Columbus, Wis, Northwestern University Medical School, Chicago, 1910, died in St Mary's Hospital April 17, aged 70, of carcinoma of the prostate

Newby, Alonzo Clark ⊕ Sheridan, Ind, Medical College of Indiana, Indianapolis, 1903, affiliated with Methodist and St. Vincent hospitals in Indianapolis, and the Riverview Hospital in Noblesville, physician and surgeon for the Monon Railroad, died May 9, aged 75, of cerebral hemorrhage

O'Callaghan, William Keating ⊕ Buffalo, Niagara University Medical Department, Buffalo, 1897, died in the Veterans Administration Hospital April 11, aged 84, of acute pericarditis

Ostrow, Herman, New York City, Long Island College Hospital, Brooklyn, 1917, specialist certified by the American Board of Ophthalmology, affiliated with the New York Eye and Ear Infirmary and Mount Sinai Hospital, died Aug 8, aged 58, of cancer

Patterson, Gilbert Lansing ⊕ Santa Rosa, Calif, University of California Medical School, San Francisco, 1922, affiliated with Santa Rosa Memorial and Sonoma County hospitals, died July 30, aged 57

Reed, Charles Jerome ⊕ Upton, Wyo, Chicago Homeopathic Medical College, 1904, for many years county health officer; served as mayor, on the staff of the Weston County Memorial Hospital in Newcastle, died in Converse County Memorial Hospital in Douglas July 23, aged 72, of carcinoma of the bladder

Robinson, Brewster Calhoun, Iowa City, Iowa, Harvard Medical School, Boston, 1947, certified by the National Board of Medical Examiners, served during World War II, resident physician at the University Hospitals, where he died July 20, aged 31, of cerebral hemorrhage

Schwarz, Jacob ⊕ San Francisco, Medical Department of the University of California, San Francisco, 1904, fellow of the American College of Surgeons, for many years on the staff of the Mount Zion Hospital, where he died July 20, aged 71

Shacklette, John Rod ⊕ Jeffersontown, Ky, University of Louisville Medical Department, 1912, served during World War I, bank president, died in Fond du Lac, Wis, July 31, aged 66, of coronary heart disease

Uridil, Joseph E. ⊕ Hastings, Neb, John A Creighton Medical College, Omaha, 1913, served on the faculty of his alma mater; affiliated with Mary Lanning Memorial Hospital, died July 16, aged 63, of coronary thrombosis

FOREIGN LETTERS

ENGLAND

Rehabilitating the Disabled.—At the invitation of the Interdepartmental Committee on Rehabilitation and Resettlement of Disabled Persons, the council of the British Medical Association set up a special committee that has now reported its findings (*British Medical Journal,* June 26, 1954). Under the National Assistance Act of 1948, local authorities can provide for the disabled such facilities as social and occupational centers, hostels, structural adaptation to the home, and transport from home to places of worship and recreation. Social resettlement has a special application in helping the disabled housewife to lead a more useful and constructive life. It may also result in freeing for productive work able-bodied men and women previously occupied with sick relatives at home. That social resettlement has not developed to the same extent as industrial rehabilitation is partly due to its more recent introduction but chiefly because local authorities are only now beginning to exercise the powers given to them under the National Assistance Act.

Rehabilitation may be exceedingly complicated, its success depending on enlightened teamwork and good administrative integration. The case of a man with loss of function of both lower limbs as a result of poliomyelitis will illustrate what is involved. He lives, perhaps, in an old fashioned house with steps up to the front door, located at some distance from a place of work. His various requirements and the agencies charged with providing them include (1) a period of rehabilitation in the hospital, where he may receive physical and occupational therapy and be provided with calipers and crutches by the Ministry of Health through the hospital services, (2) ground-floor living accommodation, through local authority, (3) a mechanically propelled tricycle and garage to accommodate it, through the Ministry of Health, (4) the construction of a special gate and runway between the road and the garage, through local authority, and (5) a job suitable for his disability, through the Ministry of Labor and the disablement resettlement officer. Retraining may be necessary at a government training center, possibly after a period of convalescence at an industrial rehabilitation unit (Ministry of Labor). In such an extreme case a long period of delay and frustration is inevitable and interdepartmental bickering likely unless all the officials concerned work closely together.

The size of the problem cannot be gauged, but it is assumed in the memorandum that 25% of the patients passing through general hospitals for acute conditions could be helped by planned rehabilitation. The whole man must be rehabilitated, including his emotional life and moral values. This involves not only medical but also industrial and social skills, and most important of all, the cooperation of the patient. The stages of acute illness, convalescence, and resettlement merge into one another, nor can there be any real distinction between medical and industrial rehabilitation. It is a special medical responsibility to ensure that the degree of invalidism during and after the illness, accident, or operation is minimal and that the final degree of functional capacity attained should match the full potentialities of the patient. Medical supervision continues to be necessary after active medical treatment has been completed; there is no stage short of complete recovery at which the physician could hand over all responsibility to nonmedical personnel. Social rehabilitation of the patient is also important, and this is a medical responsibility, though the help of a social worker is invaluable.

A comprehensive system in which the existing facilities are integrated is set out in the memorandum. The hospital or general practitioner may refer the patient to a resettlement clinic, through which the patient will proceed either to the industrial rehabilitation unit or to some form of convalescence and return to his own work, to different work, to sheltered employment, or, if he remains seriously incapacitated, to home work. This resettlement clinic, within the National Health Service, should be an integral part of all major hospitals or hospital groups and available alike to general practitioner or hospital staff. Its main function would be as a point of coordination for rehabilitation services and agencies inside and outside the hospital, a medicosocial sorting center, and a clinic for reference of patients. It would be staffed by a consultant, a general practitioner, an almoner, and a disablement officer, and the patient's physician would be invited to attend the review of patients he had referred to the clinic.

Medical supervision is essential for giving purpose to convalescence. Some form of planned convalescence is needed by about 50,000 patients every year. A patient normally engaged in heavy physical labor should receive during his convalescence a gradual reorientation of his outlook from that of an invalid to that of a responsible worker. At the resettlement clinic psychiatric advice should be available, as well as physical treatment, which must embrace medical gymnastics at this stage. The patient who needs still more specific postoperative measures should be given a course at the industrial rehabilitation unit. If the patient's rehabilitation has been satisfactory, he will be eager for resettlement.

The End of Food Rationing.—Food ceased to be rationed in Great Britain on July 4, and this event is commented on in the *British Medical Journal*. Food control began as a measure to meet wartime scarcity. It was the supply situation that determined, in January, 1940, the first foods to be rationed—butter, bacon, and sugar, and, later, meat, cooking fat, cheese, and preserves—but rationing developed into a social service, aided thereto by the relatively new science of nutrition. As a result, instead of the health of the population deteriorating during the war, it improved. An increase in minor ailments such as slight forms of peripheral neuritis was sometimes ascribed to dietetic deficiencies, but expectant mothers and children were healthier than before, which means that a healthier generation is now maturing. In the last complete year of the war infant and maternal mortality rates and stillbirth rates reached record low levels.

The years following the end of a great war have often seen greater food shortages than attended the war years themselves. There was, for instance, severe distress in this country, especially of the rural poor, after the end of the Napoleonic campaigns. At the Hot Springs conference in 1943 some such situation was envisaged. The Ministry of Food was apprehensive of a shortage of energy-giving foods after the war; indeed, a crisis in world grain supplies did occur in 1946-1947, and in this country the rationing of bread and flour came about in 1946. Until then bread had not been rationed, even in the worst months of the war, but shipping space had been saved and nutritional advantage gained by raising the extraction rate of flour from 70% to 85%. Rationing of bread was a serious step to take, yet according to the vital statistics the restriction on bread and the later rationing of potatoes did no harm to the nation's health.

During the war years the civilian supplies per capita of some of the principal foodstuffs were greater than in the prewar period. This was true in 1944 of some dairy foods, potatoes, vegetables, and grain products. Even the supplies of meat were only about 11% less per capita than before the war. For this happy state of affairs Britain owed much to the dominions and the United States of America, to countless private persons in them as well as to their governments. The larger deprivations were in sugars and fats, and perhaps the most noticeable was in imported fruits. Rationing was based on the principle that all essential foods should be equally available to every citizen to the extent necessary to maintain health, at controlled prices. When rationing came it proved to be less onerous than had been feared. Probably the period will be remembered not because of any nutritional inadequacy but because of the inconveniences of queues and ration books and the disappearance of many dietetic luxuries and variants. Improvements were made in the popular diet for

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The items in these letters are contributed by regular correspondents in the various foreign countries.

which nutritionists had been pressing for years This was a great achievement in the face of enemy submarine activity, withdrawal of labor for military purposes, and frequent disorganizations of production and distribution The table was not as inviting to the palate as usual, and much was added to the housewife's cares, but from the point of view of availability of health-giving foods the position was even better than before Control was also extended to the quality of food, the fortification of certain foods (chalk was added to flour and vitamins A and D to margarine), and the use of preservatives

Criticisms were inevitable, and many of them appeared in the correspondence columns and occasionally, in the editorials of the medical journals A rationing system was devised that was rigid enough to meet the emergency and flexible enough to allow for priorities for expectant and nursing mothers, schoolchildren, adolescents in factories and certain workers in heavy industrial trades Provision was also made for special rations for invalids and for concessions to vegetarians and those whose religion contained some dietary injunctions During the times of heavy bombing efforts were made to provide in the large shelters the sort of food that so far as possible, would help to safeguard the health of the families living in such adverse conditions In addition to the national rationing, much interfamily readjustment was possible whereby children received more than their scheduled amount of such foods as eggs, jam, and sugar, and adults, after bread rationing benefited from the relatively large bread allowance for children A "points" system introduced in 1941 eased the situation, as did food parcels from overseas, the establishment of "British Restaurants" and works canteens providing substantial meals at cost, and the practice, which has remained to some extent as a social habit, of eating out This last expedient was nothing new in rationing In the siege of Paris in 1870 newspaper correspondents were remarking that "you have to dine at a restaurant until your ration day comes round again"

Acetylcholine for Neuroses—Drs R M Phillips and J T Hutchinson reported in the *British Medical Journal* of June 26, 1954, what they observed in the treatment of a series of 211 patients in the psychiatric department of St Thomas's Hospital, London, over a period of two and one half years The patients who were helped most by courses of acetylcholine given intravenously fell within a special group of patients with obsessive or obsessional tension states Of 104 patients in this group, 70 2% were improved by the treatment It has also been found useful in certain patients as an adjunct to electroconvulsive therapy, modified insulin, and the emetic aversion treatment for alcoholism Over 6,000 injections have been given, and the treatment, with certain precautions, has been found safe and relatively simple to use on outpatients

Early in the investigation some difficulty was experienced in finding the type of patient who might benefit most from the treatment Most of the first patients treated were chronic hospital attenders suffering from anxiety hysteria, and the injections served only to increase their fears At this stage the investigation was nearly given up, but it was continued because of the response of a woman who had been referred for a possible leukotomy She had been suffering from an obsession that she might harm her child and great tension for over two years The 28 injections she received gradually relieved her symptoms, and the leukotomy was not performed She has remained well for over two years Another early patient who showed a good response was also suffering from recurrent tension with obsessions Other patients were selected for treatment mostly because they had single fixed symptoms, fluctuating intensity of the illness, and evidence of a good basic personality as shown by their ability to carry on their work despite their illness

The patients helped most were often between 30 and 50 years of age By far the best results were obtained in those of athletic build They tolerated the treatment well, but the asthenic and the pyknic patients, especially the young, obese patients, were not helped They proved particularly sensitive to the injections and became frightened easily The benefit that alcoholic patients derived from the treatment was in keeping with the fact that they often have an obsessive personality, indeed, their drinking is often of a compulsive nature

Effect of Free Legal Aid—In a recent court case in London, counsel spoke of the effects on a physician if, during an operation, he had to bear in mind that he might receive a writ for negligence A woman claimed that her voice was irreparably damaged by a thyroidectomy at St Bartholomew's Hospital in January, 1952 She formerly did free-lance broadcasting She asked for damages from Dr Black, physician, Mr Tuckwell, surgeon, and the governors of the hospital, saying that Dr Black gave her wrong advice, that Mr Tuckwell performed the operation negligently, and that the hospital was negligent in postoperative treatment All the allegations were denied Counsel said "Owing to the conjunction of the National Health Service with the Legal Aid Service, it looks as if we are getting into the position in which anybody who does not come out of a hospital completely cured is under the impression that he can issue a writ for negligence" A physician would have to consider at each stage If I do this it will be the best thing for the patient, but I may have a writ for negligence, whereas if I do that I don't think it will really be in the interests of the patient, but I shall be safe Another surgeon said that Mrs Hatcher had a paralysis of the left vocal cord, that there had been no change in her condition since December, 1952, that the cause of the paralysis was damage to the recurrent laryngeal nerve during the operation, which is a well known hazard of the operation, and that he told his patients of any risk involved if specifically asked Later, he said "I don't think every patient should be told every risk he undergoes, otherwise no one would undergo an operation" Mr Tuckwell said that the day before the operation he had told Mrs Hatcher that there was no risk and added, "I would do exactly the same again"

Loans for Physicians' Offices—At a recent meeting of the Hampshire Health Committee, the county medical officer said that the government's scheme to allow interest-free loans to general practitioners for the provision of new offices or the improvement of those now in use will probably do away, to a large extent, with the need for local authority health centers In the county, 12 sites have been reserved for main health centers and 12 for subsidiary centers Dr Cronk explained that health centers were not likely to be built in the near future because they were so expensive and general practitioners would think twice before renting offices in them The health committee agreed to a proposal by Dr R Gibson that the County Councils Association should be asked to approach the Minister of Health for clarification of his policy regarding health centers Dr Gibson declared "We have been around the county sterilizing land for use for erecting health centers and that now seems not to be in accordance with the Ministry's policy—when they proceed to spend thousands of pounds on interest-free loans to doctors to improve their own buildings"

It was not to be expected that, if in a few years millions were spent on the erection of public health centers, the physicians would be ready to move from newly erected premises for which they had borrowed money and go into the health centers Nor could physicians be expected to borrow money to improve offices or erect new ones when they expected within a few years to have to move into an expensive health center

Senescence and Fitness for Work.—The Nuffield Foundation, in its study of old persons, is asking what happens to men as they age within various industrial categories, such as building, transport, and mining In a study of 320 aging men the conditions were found very favorable for the retention of elderly craftsmen and laborers, because in the immediate postwar years many of the local authorities had some difficulty in securing young laborers for their building staffs Most of the men studied were traced from the age of 60 to the end of their working lives as building employees, though some of them may have found further employment They were all on maintenance and repair work, this is usually to the advantage of an elderly man They were all apparently quite fit for the job as they approached their sixties, but of those who were fit at 60 not much more than 70% were still fit as building workers by 66 years After that the decline in numbers through age or ill health was steady and continuous, so that at 70 years only about 30% were still in the labor force Most of the men who remained after their midsixties probably could not have stood the pace of work in modern housing construction

Effect of Smog on Lungs—Smog as a possible cause of lung cancer is referred to in the 1953 report of the British Empire Cancer Campaign The increase in deaths from this disease and the higher incidence in towns has recently been ascribed to tobacco, but a possible contributory effect of the suspended matter of urban air cannot yet be excluded Iceland provides an example of a country where bronchial cancer is rare, the general consumption of tobacco small, and atmospheric pollution quite unlike that in England In the course of years comparative studies in the two countries may define the importance of these two factors

FRANCE

Congress of Ophthalmology—The 61st Congress of Ophthalmology was held in Paris in May Professor Nordmann of Strasbourg stated that alterations in the proteins of the lens account for the disorders of its transparency Glucose is essential to its nutrition Vitamin C is not synthesized in the lens It acts as a stabilizer of oxidation and reduction and is fairly important in the transportation of hydrogen in the internal respiration The initial lesions responsible for opacity explain the vacuolization of the lens fibers In irradiation by x-ray and the siderose cataract, the initial lesions occur in the lens epithelium On the other hand, in senile cataracts the lens fiber is the first element to be damaged Professor Nordmann recommends insulin to prevent diabetic cataracts and cysteine to prevent irradiation cataract

Zannen of Brussells and his co-workers believe that hyperoxidation is a cause of retinopathies of the newborn The incidence of this condition is low in the hospital of the University of Brussels They account for this by the fact that the oxygen content of the air in the incubators is kept at a low level Toulant and Botthias reported that in Sudan, High Valta, and Equatorial Africa, in 30 to 40% of the blindness due to Onchocerca volvulus, the lesions are in the fundus of the eye and involve the arteries rather than the veins Contrary to the observations of others, these physicians have seen bilateral optic atrophy in 25 to 33% of the patients The vision is quickly lost. Because this condition is more frequent in Sudan and High Volta than in the Tchad and more frequent in Africa than in Mexico, Toulant and Botthias believe that, in spite of the apparent identity of the parasites, some strains are more dangerous than others

Hemochromatosis—At a meeting of the French Association of Medical Biology, Carroll and Eteve discussed the role of the liver in hemochromatosis They divided their patients into those with (1) the pure essential cryptogenetic form, which is a congenital and often familial disturbance of iron metabolism, and (2) the symptomatic and secondary form, which may be due to malaria, syphilis, nutritional deficiency, or alcoholism The excess of iron occurs in the liver in alcoholic cirrhosis as well as in cirrhosis due to biliary obstruction It is rare in women Alcoholic hemochromatosis is characterized by symptoms of portal hypertension and an absence of diabetes Dehe has studied the hereditary aspect of hemochromatosis in 43 descendents of patients with this disease belonging to 24 families. The iron level in the serum, the provocative siderosis test, and the determination of the iron-binding capacity of the serum were obtained In 35% of the patients some abnormalities were found. Before the age of 14 years 25% of the boys and 21% of the girls showed some disorder of iron metabolism After the age of 15 years 14% of the girls and 80% of the boys showed such disorders Dehe presents two hypotheses to explain this difference (1) hemochromatosis may be a dominant defect of incomplete penetration, or (2) it may be an autosomic, recessive disease transferred in the homozygotes in the form of clinical hemochromatosis and in the heterozygotes in the form of an isolated siderosis

ISRAEL

Hereditary Elliptocytosis—Dreyfuss, Mundel, and Salomon report some cases of hereditary elliptocytosis or ovalocytosis in *Harefuah* for August, 1954 The oval shape of the red blood cells is normal for camels, and its appearance in man may therefore represent an ontogenetic atavism. It occurs in human beings irrespective of race or color The erythroblast is circular, whereas the reticulocyte already shows the oval shape of the mature erythrocyte

The elliptocyte is an erythrocyte with an elliptical shape It is sometimes differentiated from an ovalocyte, which is slightly thicker than the former Up to about 6% of the erythrocytes in a normal blood smear may be ovalocytes, some of them elliptocytes Elliptocytes or ovalocytes may be seen in various pathological conditions, such as pernicious and hemolytic anemias, especially Cooley's anemia and trait, anemia following hemorrhage, leukemias, pulmonary tuberculosis, and subacute bacterial endocarditis In these conditions other hematological signs of anemia are found, but in most of them there is no obvious genetic relationship The condition of familial hereditary elliptocytosis, on the other hand, usually lacks the poikilocytosis and obvious anisocytosis of the anemias mentioned and is usually not accompanied by anemia Only about 12% of the reported cases showed signs of hemolysis and anemia Apart from these cases, elliptocytosis seems to produce no clinical signs or symptoms Two families showing elliptocytosis are described, both from Iraq According to investigation of the family tree, the defect is dominant in the case of the first family and behaves in the same way in one generation of the second family In neither of the two families have any other genetically determined illnesses been found. Possible linkage to a blood group out of one of several systems was looked for in the second family A family exhibiting elliptocytosis has been reported recently by Goodall and associates in which the trait seemed to be linked to one of the Rh subgroups In the second family an evaluation of such a study is impossible because the proband and all her siblings are Rh negative homozygotes The importance of the recognition of hereditary elliptocytosis is to differentiate this usually harmless anomaly from other abnormal hematological pictures and to diagnose correctly a rare case of this disorder when it is accompanied by hemolysis and anemia. From an ethnologic point of view these appear to be the first cases of this condition to be described in Oriental Jews

Dental Fraternity Given Charter—Dr Louis I. Galin, national president of the Alpha Omega Jewish dental fraternity in the United States, presented the charter of the first Alpha Omega chapter in Israel to an alumni group of 14 Jerusalem dentists in July, 1954

ITALY

Types of Hemoglobin—At the Italo-Franco Swiss biochemical meeting held in Naples in April Professors Roche and Derrien of Paris said that fetal hemoglobin differs in chemical structure from that of adults A few weeks after birth the fetal hemoglobin begins to disappear, and it is found only in small traces if at all in the blood of a normal adult. As a result of these studies it has been shown that in Cooley's anemia a high level of fetal hemoglobin (in one patient it reached 96%) is found in the circulating blood Since this is a constant finding, it has a diagnostic value Pathological types of hemoglobin have been found in other diseases

Professor Rossi-Fanelli of Rome stated that although the search for the presence of a pigment other than hemoglobin in the muscles goes back many years, the actual demonstration of it was obtained only recently with the preparation of myohemoglobin in the pure and crystalline state The concentration of myohemoglobin is greatest in those muscles performing slow, repeated, and powerful contractions On the other hand, the muscles that contract more frequently contain little myohemoglobin but large quantities of cytochrome The myohemoglobin content in the striated muscles is linked to muscular exercise, it increases with exercise but decreases with prolonged rest The total amount of myohemoglobin in man is about 200 gm Myohemoglobin acts as a special oxygen reservoir Prof A Vannotti of Lausanne reported that the level of cytochrome varies in relation to the various body tissues and the intensity of the cellular respiratory exchanges There is no direct relationship between the circulating hemoglobin and the level of cytochrome C The biosynthesis of cytochrome C in the various body tissues is independent of the biosynthesis of hemoglobin In case of an intense cellular combustion the body may produce the cytochromes rapidly and locally without transporting the pigment from one tissue to another

Arteriosclerosis—At the ninth meeting of internal medicine, held in February at the Institute of Clinical Medicine of the University of Florence under the auspices of the Tosco-Umbro-Piceno Emilian Society of Internal Medicine, Professor E Greppi and his co workers discussed humoral factors in the pathogenesis of arteriosclerosis They found that after the first appreciable signs of hypercholesterinemia certain humoral factors may be regularly observed in the blood s lipoprotein structures The most characteristic pattern of atheromatous disease is the unbalanced distribution of liproproteins in the beta-alpha ratio, the beta fraction predominating The presence of this altered ratio appears earlier and oftener than any other finding, including higher cholesterolemia, the cholesterol and phospholipid ratio and the blood protein imbalance It also closely parallels the evolution of a given atheromatous process

Premenstrual Syndrome—At a meeting of the Pistoia Medical Academy, Drs Girardi and De Vita reported that although the cause of the premenstrual syndrome (premenstrual tension) is still unknown, it is believed to be based on a state of hyperfolliculinism In this hormonal imbalance a decreased estrogen-inactivating capacity of the liver may play an important role To be efficacious, therapy with folliculin antagonizing hormones, especially testicular hormones, must reach a dosage that may produce untoward side-effects Treatment with vitamins, especially vitamin A, has been widely used Vitamin B complex has been used on a smaller scale, but the results have been gratifying The speakers have tried a combined therapy with vitamin A and B with good results

TURKEY

Kala-azar—The kala azar (visceral leishmaniasis) seen in Turkey occurs mostly in children Almost all patients contract the disease in Istanbul or its environs or on the coastal regions of the Mediterranean, the Aegean, or the Marmara Sea No reports of kala-azar contracted on the Black Sea coast have been received No hospital cases of kala-azar were reported in central Anatolia Kala azar has been added to the list of insect-borne diseases occurring in Turkey During the summer and autumn the Phlebotomus is everywhere in Turkey The first case of kala-azar in Turkey was reported in 1931 Since then this disease has been diagnosed in 147 children and 12 adults

In an article in *Hospital* Aksoy and Neriman reported 11 children with kala-azar Their ages ranged from 7 months to 7 years All children came from families in the lower income groups Their temperatures ranged from 100 4 F to 102 2 F Splenomegaly, hepatomegaly, and anemia were present in all patients In three patients the lower edge of the spleen had descended below the pubis, in the others below the umbilicus In all patients the liver was palpable 2 or 3 cm below the costal margin One patient had epistaxis and one had gingivitis Erythrocyte counts varied from 1,600,000 to 2,800,000 The lowest leukocyte count was 1,440 The color index varied from 0 5 to 1 Differential counts showed about 48% large mononuclear cells, 23% lymphocytes, and 29% polynuclear neutrophils, one patient had 1% eosinophils No parasites were found in the blood by direct examination and blood cultures were not made In most patients the formaldehyde (Formol) gel tests were positive within 10 minutes Sternal and tibial punctures revealed Leishmania donovani The myelograms of five patients showed 0 2 to 1 25% plasma cells The patients were given an antimony compound (H 8), ethylstibamine (Neostibosan), and/or stibamine tartrate, but the mortality rate is still high As the symptoms of kala-azar closely resemble those of chronic malaria, Leishmania organisms are looked for in all patients in whom a diagnosis of chronic malaria has not been confirmed

Medical Schools—Prof Nafiz Uzluk of Ankara presented a short survey on medical education in Turkey in *Dirim* Under the Ottoman Empire there were training centers in Anatolia and in Therakya, Edirne In 1470 Sultan Mehmed II established the first training center for physicians in Istanbul Sultan Mahmoud II established the first modern military school in 1827 in Istanbu Pera and for 20 years the school supplied the army with physicians and surgeons During the Crimean War (1854-1856) instruction was interrupted for a year At its inception instruction was in Italian (later in French) and graduation required 8 to 10 years Only 135 diplomas were issued during the school's first 27 years To attract students, they at first received the rank of colonel at graduation, later this was changed to lieutenant colonel, then to major, then to captain, and currently graduates of the Military Medical School have the rank of lieutenant By 1867 there were sufficient Turkish graduates who had supplemented their studies at French and German universities to take over instruction in Turkish Now only six years are required for graduation, and the number of students has increased In 1873 a school for nonmilitary physicians and pharmacists was established During the first 25 years (1873-1898) 583 physicians and 401 pharmacists were graduated The need for even more physicians was obvious, and in 1903 another medical school was opened in Damascus It functioned until 1919, having graduated 240 physicians and 289 pharmacists There were an American and a French medical school in Beirut, and to the latter a group of professors from Istanbul University was delegated every year In 1909 the two schools in Istanbul merged, transferred to a new building, and became the Istanbul Medical Faculty of Istanbul University

During World War I typhus epidemics greatly reduced the number of physicians, when the Ottoman Empire terminated in 1923 the Ministry of Health and Social Assistance of the Turkish Republic had only 554 physicians, 69 pharmacists, 566 sanitary inspectors, 139 midwives, and 4 trained nurses Since 1924 the ministry has maintained a dormitory for over 950 students in Istanbul Currently the number has been greatly reduced The students receive free board and maintenance and are supplied with every article of clothing needed and other necessities including textbooks In addition they receive a monthly allowance for six years The graduates repay the government with four years of compulsory service Mostly they are given appointments as government physicians and medical officers of health in malaria, trachoma, and venereal disease campaigns The offer of free medical education greatly increased applications for admission, which resulted in restriction and higher entrance requirements All university students are admitted on the basis of a competitive examination and applicants for medical school are given aptitude tests All students are required to have a working knowledge of German, French, or English

In 1933 Istanbul University was reorganized Since Istanbul Medical School could no longer cope with the growing demands of modern medical science and the enforcement of a comprehensive public health program, the establishment of a second medical school in Ankara, the capital, was authorized in 1937, but the outbreak of World War II made the project impossible The opening of the Ankara Medical Faculty in September, 1945, established Ankara University Ankara General Hospital, Gulhane Hospital, and the Maternity Hospital, with 1,250 beds collectively, serve as teaching centers Since its inception Ankara Medical Faculty has issued 857 diplomas (786 to men and 71 to women) Currently there are 311 women physicians in Turkey, and they hold positions of associate and assistant professors at the medical schools, interns in hospitals, or city health officers or are in private practice Currently there are 1,600 medical students at Ankara University There are 32 professors (three are not Turkish), 31 associate and assistant professors, 114 salaried assistants, and 179 unpaid assistants who are specializing Three years are required for specialization in internal medicine, surgery, obstetrics and gynecology, pediatrics, and hygiene and public health, and two years in other branches At present there are about 9,500 physicians in Turkey

CORRESPONDENCE

IN PRACTICE AT EIGHTY-SEVEN

To the Editor —Yes old doctors don't quit they just keep on keeping on Am wondering how many of my age are still keeping on? Born Nov 9, 1867, graduated from Northwestern Med 1899 and immediately located in Verona, Wis (Dane County near Madison) Moved to Virginia in 1913 Practiced in James City County until 1917, when we moved to Newport News, where I joined the Elizabeth Buxton Hospital staff, and am still active in general practice

Attended that wonderful World Medical Convention in Richmond Va., a year ago this last April and met some of my old Chicago friends Dr Julius H Hess is a dear classmate, and am disappointed not to be able to attend our 55th class reunion

An older sister, Dr Mary M Cutler, graduate of Ann Arbor Med in 1888, was sent to Korea as a medical missionary in 1894 and retired in 1940 On one of her vacation trips home via Siberian R R a delayed schedule prevented her from boarding that tragic Titanic After surviving a fractured skull, a ruptured appendix, and cholera, she fell in her own room fracturing her hip and died soon thereafter in a Grand Rapids (Mich) hospital The old homestead at Cutlerville south of Grand Rapids, is now owned by the Christian Psychiatric Hospital, otherwise known as Pine Rest Association

My very best regards to all the young docs over 85 and urge them to keep on keeping on

Fraternally and most sincerely,

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Dr Cutler was 83 in 1950 Figures available to the A M A's Bureau of Medical Economic Research in that year showed 2 242 out of a total of 205 000 physicians to be 84 years of age or over in April 1950 In fact according to their records there were six physicians who had reached or passed the century mark —ED

MASTER TESTS

To the Editor —In the article "Negative Master Tests in the Prodromal Stage of Myocardial Infarction' by J Richard Durham of Wilmington, Del (THE JOURNAL, June 26, 1954, page 826), there are several points on which I wish to comment

In the first place, the title of the paper, Negative Master Tests" is not correct Actually, the 'two-step" illustrative electrocardiogram is not negative it is positive, that is abnormal, since the RS-T segment in precordial lead V_4 is at least 1 mm below the isoelectric level (P R interval) The criterion for a positive "two-step test is an RS T segment depression of more than 0 5 mm Hence, the major premise of the paper is false, and the conclusion is necessarily wrong Furthermore, Dr Durham does not state whether the single or double two step' test was used This is extremely important, for, if the preliminary single two-step" test is negative, the double two step" test, i e., the three minute test must be performed before coronary disease is excluded. Nor does he state how soon after cessation of the exercise the 'two-step" exercise electrocardiogram was recorded This should be done quickly, preferably within 40 seconds, since significant transient changes may otherwise be missed Surely the 12 leads taken after exercise, depicted in the illustration, took more time than this That is why 4 leads, not 12, are customarily taken after the standard two-step exercise We now use only leads II, V_3, V_4, and V_6 as the postexercise leads, since they almost always demonstrate the abnormalities that may appear We formerly used leads I, II, III, and V_4 If 12 leads are used, 3 or 4 leads must be taken simultaneously, this was obviously not done by Dr Durham. Incidentally, we now consider RS-T depression the significant change after the two-step" exercise T-wave changes alone, or the appearance of transient arrhythmias alone, are of much less importance

Dr Durham states " inhalation of 10% oxygen, Master two-step test, or various degrees of uncalibrated exercise may fail to give positive results in as high as 50% of the patients with known coronary atherosclerosis" His statement is wrong insofar as the Master test is concerned, in our experience, the two-step' test is positive in about 95% of definitely proved cases of coronary disease Better diagnostic results can hardly be expected from any laboratory aid in medicine Whoever is acquainted with the peculiar nature and unforeseen course of coronary artery disease—the silent" coronary occlusions, the sudden episodes without any previous complaints, the complete functional recovery for years—will appreciate the remarkable accuracy of the test Certainly, the Master "two-step" test is not infallible It is not immodesty that causes me to repeat my name The name is used to emphasize the fact that any modification of the Master test is not the test that my colleagues and I have described

Dr Durham also states in his article, 'Four days prior to admission, he [the patient, a 42-year-old man] experienced substernal pain with bilateral arm radiation while shoveling cement, this lasted three hours, and only equivocal relief was obtained with the use of glyceryl trinitrate (nitroglycerin)" Later, he states, "Glyceryl trinitrate, amyl nitrate perles, and meperidine (Demerol) gave such equivocal relief for the pain that placebo therapy was tried by the medical resident Finally, morphine sulphate, one-half grain every four hours, was necessary to relieve the patient s distress" Whenever glyceryl trinitrate does not relieve the chest pain, and morphine is necessary, the diagnosis is not a simple episode of angina pectoris Glyceryl trinitrate or amyl nitrate should not have been given to this patient, since this type of therapy may itself precipitate or aggravate myocardial infarction Nor should an exercise test have been performed in such an obviously serious condition Rales were actually heard at the left base It speaks well for the great range of safety of the Master two step" test that serious illness was not precipitated by the exercise

Dr Durham said the two step test should not be considered harmless Correctly performed, the two step" test is safe It should not be done unless the 9 or 12 lead resting electrocardiogram is normal The exercise must be stopped promptly if pain appears No exercise should be undertaken if the patient appears to be acutely ill In more than 15,000 tests, done under my personal supervision, there has never been an accident On the rare occasions on which an episode of acute coronary disease has been reported to me following an exercise test, it was not the Master two-step" test that had been performed but some so-called modification of it, e g, undertaking the test when the resting electrocardiogram was positive or walking the patient until pain developed, or it was an entirely different form of exercise, such as alternately squatting and standing or running up a flight of stairs These are indeed dangerous procedures if coronary disease is suspected

In summary, Dr Durham described a patient who was seen in the premonitory or prodromal phase of coronary occlusion At such a time, of course no exercise should have been permitted, since infarction may have been precipitated or aggravated thereby He reported that the two-step" test was negative It is positive

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Dr Master's letter was referred to Dr Durham for comment, and his reply follows —ED

To the Editor —I wish to answer Dr Master s criticism of my recent article entitled 'Negative Master Tests in the Prodromal Stage of Acute Myocardial Infarction" (*J A M A* 135 826-827 [June 26] 1954) First, the ST depression in V_4 was less than 1 mm, actually, averaging the complexes in this lead resulted in a figure closer to 0 49 mm If the criteria for positive tests are continually reduced by fractions of a millimeter in order to avoid the occurrence of a false negative test, the general applicability of the test is decreased and the number of false positive tests is, of course, increased To argue over fractions of a millimeter in the graph as currently scaled is a *reductio ad absurdum* Second, I should have stated that the single "two-step test was used, it was not followed by the double "two step test I accept the criticism of the 12 lead postexercise tracing although it was taken quickly after the exercise Two of the other cases observed, however, had the now current immediate and six-minute postexercise tracings (V_1, 1, 2, 3) Third, Dr Masters forces me to quote from my article "I do not mean to imply however, that such a test should be considered harmless certainly good clinical judgment would proscribe placing any added strain on the coronary circulation during this period Nevertheless an exercise tracing will occasionally be done inadvertently before the true state of affairs is recognized " Incidentally sibilant rales are hardly diagnostic of myocardial infarction

Dr Masters has apparently misinterpreted the purpose of this report it is not to condemn the "two step" or other stress tests, but simply to point out that on relatively rare occasions a negative test may occur in the prodromal stage of infarction (*not* in coronary insufficiency) owing to an unusual distribution of the muscle area involved at that particular moment In the case reported resting and/or exercise tracings might well have been positive at different times during the month-long prodromal period preceding admission The second purpose of my article is to direct our thoughts to this latent period of infarction—what can be done to forestall or lessen the end result?

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NEUROCIRCULATORY ASTHENIA

To the Editor —This is in reply to a recent letter from Dr John D Campbell (*J A M A* 155 511 [May 29] 1954) commenting on my article Psychiatric Observations in Neurocirculatory Asthenia " in The Journal for March 27, 1954, page 1054 I disagree with an approach that does not attempt to get to the fundamental causes If there is a 'hypersensitive autonomic nervous system," then one must find out what makes it so and not be content with the idea really an illusion, that one has discovered something basic My major thesis is that these autonomic symptoms, as well as the motor symptoms (weakness easy fatigability, shortness of breath) that occur during anxiety states, are reversible when one finds the psychological factors conscious or unconscious, and changes them There is accumulating evidence in the literature that this can be done Other diseases such as depressions and melancholia, in which there may be overlapping symptoms of anxiety, are not identical with neurocirculatory asthenia Anxiety has a place in psychiatric disorders something like that of fever in infectious diseases All conditions in which anxiety symptoms occur are not the same, just as not all fevers have the same cause Electroshock treatment is effective in depressions and very ineffective in neuroses, in fact, it makes a patient worse There is a tendency of certain psychiatrists to treat everything, even psychogenic disorders, with electroshock and not to recognize specificity This is generally due to lack of care in studying psychological matters The psychological facts are there for anyone to see

There is a particularly important error in Dr Campbell's letter, namely that these disturbances arise in the hypothalamus The cerebral cortex and the mind are now known to be at a higher level and just as intimately associated with autonomic functions through the orbital cortex and its connections, which is only one part of the total circuit involved in the functions of thinking and feeling The cerebral cortex has more recently been shown to function at a higher level in the autonomic nervous system, just as it does in the motor and sensory systems Areas of the orbital cortex, the cortical representations of this autonomic system, probably can influence the lower discharge centers both directly and through the hypothalamus The mind, thinking, and feeling undoubtedly involve many circuits, including those of the autonomic nervous system It is an error to ascribe the whole disturbance of neurocirculatory asthenia with its fear, anxiety, and phobic thinking to a mysterious (and undemonstrated) disturbance of the hypothalamus There is no evidence, clinical or experimental, that a primary disturbance of the hypothalamus, only a part of this system, is the origin of this disorder that is under discussion Inasmuch as anxiety can be shown to cause such symptoms and, so far, nothing else can, I will continue to regard neurocirculatory asthenia as essentially psychogenic

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THYMUS GLAND AND TUMORS

To the Editor —I was impressed while reading the editorial 'Mediastinal Granuloma" (*J A M A* 155 1160 [July 24] 1954) with the similarity of these lesions to some I have seen in guinea pigs where the lesion is obviously thymic in origin I was further stimulated to recall Dr James Ewing's article "The Thymus and Its Tumors" (*Surgery, Gynecology and Obstetrics* 22 461, 1916) Dr Ewing described similar lesions and cited the reference of others to the condition Drs Kunkel, Clagett, and Mc Donald mentioned the possibility of thymoma in their differential diagnosis, but apparently it was not seriously considered after the lesion was seen I feel strongly that a thymic cause should be more seriously considered for tumors of this kind

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TONSILS AND POLIOMYELITIS

To the Editor —It is well known that there is nothing so misleading as statistics are at times, or rather the interpretation of them The article "Absence of Tonsils as a Factor in the Development of Bulbar Poliomyelitis" by Dr Anderson and Mr Rondeau, page 1123 in the July 24 issue of The Journal, may be one of the times that the cart may be before the horse Could it not be that the very conditions that caused the tonsils to be removed favor the bulbar type of poliomyelitis? If we accept the conclusion that removing tonsils favors the development of the bulbar type, many who need their tonsils removed may be deprived of the benefit I am not trying to build up business, as I have never removed a tonsil I have referred patients to specialists for the operation when I felt it desirable

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DRUG ABSORPTION IN MOUTH

To the Editor —Ergotamine tartrate and caffeine can be absorbed from mucous membrane Because many patients with migraine or tension headaches are too nauseated to tolerate these drugs by mouth, and because it is difficult to arrange for administration of ergotamine tartrate hypodermically at the onset of an attack, it has been advised that they be administered rectally This was first suggested in 1894 by Thomson, who used tincture of ergot for "periodic neuralgia of the head" More recently the use of these drugs has been reported in the form of suppositories or tablets (Cafergot) I wish to call attention to a much more satisfactory procedure in these cases The patient is instructed to break the tablets (Cafergot) between his teeth and allow them to be absorbed from the area between the teeth and cheek The tablets have a moderately bitter taste, but patients with severe headaches seldom complain of this I have used the buccal absorption route successfully in many patients who do not respond well to ergotamine tartrate and caffeine when they are swallowed, probably because of poor absorption from the gastric mucosa In patients with even slight nausea associated with headache and in those who have gastrointestinal distress on swallowing the drugs I prefer to use buccal absorption within 30 minutes of the onset of headache Unless this is tried with such patients, an adequate therapeutic test has not been made

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MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

The Treatment of Postmyocardial Infarction Shoulder Hand Syndrome with Local Hydrocortisone H Berger Postgrad Med. 15 508 511 (June) 1954 [Minneapolis]

The use of corticotropin (ACTH) or cortisone, though followed by more uniformly good results than any of the other methods used in treating patients with the causalgic postmyocardial infarction shoulder-hand syndrome, may have a detrimental effect on their cardiac status Hydrocortisone (Compound F), however, has only a local action and relieves the discomfort of osteoarthritis when administered intrasynovially without producing undesirable systemic effects Similarly beneficial results obtained by its use in 18 consecutive unselected patients with the shoulder hand syndrome seem to show that this product possesses all the advantages of cortisone without any of its dangers Hydrocortisone in 50 mg. doses was injected into any painful trigger area about the shoulder girdle The dose was chosen arbitrarily, and experience may show that a lesser quantity will suffice Most patients required only one injection but if pain persisted or recurred, the injections were repeated at 48 hour intervals as needed The largest number given was four Posterior sites of injection (the supraspinatus and the infraspinatus as well as posterior deltoid fibers) were outnumbered 18 to 2 by the anterior sites (the pectoralis major and/or minor, the anterior fibers of the deltoid, and possibly the intercostal) None of the patients was treated with a sympathetic ganglion block or underwent surgical treatment of the sympathetic system all but four, however, had received various other forms of therapy, such as ethyl chloride spray, procaine injections into trigger areas, and various physiotherapeutic measures The syndrome was acute, i e, of less than three months duration in all 18 Procaine was not used for skin anesthesia, since this medicament in itself sometimes proves useful in the treatment of the shoulder-hand syndrome Partial or total relief of pain was obtained within 24 hours at the most in each case, and was followed by the gradual disappearance of trophic changes and the limitation of motion caused by the syndrome The possibility that hydrocortisone may prove beneficial in causalgic states produced by conditions other than myocardial infarction is to be the subject of later investigation.

Oral Cortisone Therapy in Periarthritis of the Shoulder A Controlled Trial N J Blockey, J K. Wright and J H Kellgren Brit. M J 1 1455-1457 (June 26) 1954 [London, England]

Of 32 patients between the ages of 45 and 70 years with periarthritis of one or both shoulders, 16 received cortisone acetate made up in a syrup to a concentration of 12 5 mg per cubic centimeter The drug was given orally in four divided doses during the day The daily dose was 200 mg for the first three days, and 100 mg. thereafter until the 14th day The daily dose was then tailed off in decrements of 12 5 mg every two days, the total dosage for one four weeks' course being 2 5 gm The remaining 16 patients received an inert suspension made from magnesium hydroxide, syrup, and concentrated infusion of quassia, in similar dosage At the end of four weeks, the patients who had not progressed satisfactorily had their shoulders manipulated with the aid of general anesthesia to obtain a full range of motion This manipulation was followed by a second four-weeks course of cortisone or inert suspension, and the patients were followed for 18 weeks One of the patients in the cortisone group died suddenly of coronary occlusion before the end of the first course of treatment At the end of the first four weeks, 11 of the 16 control patients were not progressing satisfactorily and therefore their shoulders were manipulated Only 6 of the 15 patients in the cortisone group were considered to require manipulation In the patients treated with cortisone, the main reduction in pain occurred during the first week of treatment, during which the control patients showed little change Cortisone therapy thus appeared to expedite the relief of pain and the recovery of shoulder motion and to reduce the number of patients requiring manipulation, but there was great individual variation in response to treatment, so that none of the differences between the two treatment groups reached conventional levels of statistical significance

Broncholithiasis. E Minetto and L Daprà Minerva med 45 1226 1236 (May 2) 1954 (In Italian) [Turin, Italy]

Broncholithiasis probably occurs much more frequently than it is diagnosed It is asymptomatic in many cases and often a person who has never complained of pain coughs up suddenly a single broncholith The authors are concerned mainly with the pathogenesis of the condition Although constitutional and hereditary factors may play a part, its causes may be many and may vary from person to person The broncholith may have a tuberculous origin and be the calcification of a tuberculous hilar lymph node that reached the bronchial lumen through a process of transparietal migration In many cases reported in the literature, there was clear evidence of a cause and effect relationship between the tuberculous infection of the hilar lymph nodes and the broncholith. Although the diagnostic hypothesis of broncholithiasis arising from a tuberculous lymph node is the most accepted, any inflammatory process of the lung or bronchus may under certain conditions cause it. Pathological processes of inflammatory or degenerative nature with a chronic course involving the bronchial tissue may cause that complex of anatomic and functional tissue alterations which, through modifications of the cell s mineral metabolism, condition the formation of calcareous deposits A broncholith may also form around organic or inorganic matter that arrived in the bronchial lumen through the respiratory pathways This explains the presence of aluminum and silicon in some broncholiths Usually their chemical composition is 85 to 90% calcium phosphate and 10 to 15% calcium carbonate Another cause of broncholithiasis may be bronchial calcification This process, common in the aged and suggestive of senile dystrophic alteration, originates in the cartilages of the trachea and bronchi and may sometimes undergo endobronchial fistulization Some authors believe that calcification of the bronchial cartilages is a more frequent cause of broncholithiasis than are tuberculous lymph nodes Morbid processes of any nature that involve the lymph nodes and the bronchial tree can create the complex of conditions from which broncholithiasis develops Mucus, desquamated or necrotizing epithelium, products of bacterial and hematic lysis, and foreign bodies in general may constitute the organic nucleus around which calcium and magnesium salts or other mineral substances precipitate as a consequence of the altered cellular metabolism

The Mortality of Doctors in Relation to Their Smoking Habits A Preliminary Report. R. Doll and A B Hill Brit. M J 1 1451-1455 (June 26) 1954 [London, England]

In October, 1951, a simple questionnaire relating to smoking habits was sent to 59,600 men and women on the British Medical Register, and replies sufficiently complete to be used were received from 40 564 members of the medical profession On that basis they were divided into nonsmokers and three groups of smokers (including former smokers) according to the

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The place of publication of the periodicals appears in brackets preceding each abstract

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individual subscribers provided they reside in continental United States or Canada. Requests for periodicals should be addressed Library American Medical Association Periodical files cover 1945 to date only and no photoduplication services are available. No charge is made to members but the fee for other borrowers is 15 cents in stamps for each item. Only three periodicals may be borrowed at one time, and they must not be kept longer than five days Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order Reprints as a rule are the property of authors and can be obtained for permanent possession only from them amount they smoked at that time (or when they gave up) In the 29 months that elapsed after the questionnaires were sent out, 789 deaths were reported among the 24,389 male physicians who were aged 35 years and over at the time they completed the questionnaire Of these deaths, 36 were certified as caused by lung cancer The authors' preliminary report is confined to this group of deaths, since cancer of the lung is relatively uncommon in women and rare in men aged less than 35 Although the numbers of deaths at present available are small, the resulting rates revealed a significant and steadily rising mortality from deaths due to cancer of the lung as the amount of tobacco smoked increased There was also a rise in the mortality from deaths attributed to coronary thrombosis as the amount smoked increased, but the gradient was much less steep than that revealed by cancer of the lung The other groups of deaths so far analyzed, i e those resulting from other forms of cancer, other forms of cardiovascular disease, respiratory diseases, and all other causes did not reveal any gradient The figures for cancer of the lung are in conformity with those found previously in an extensive inquiry into the smoking histories of patients with cancer of the lung and with other diseases

The Absence of Effect of Cortisone Therapy Upon Plasma Lipid Levels in Patients with Rheumatoid Arthritis H G Kelly, J G Hill and E M Boyd Canad M A J 70 660 661 (June) 1954 [Toronto, Canada]

The concentration of plasma lipids as determined by Boyd's modifications of the oxidative micromethods of Bloor was studied in 43 patients with rheumatoid arthritis and compared with corresponding values in 16 healthy, normal young adults The range of concentrations of lipids in blood plasma of patients with rheumatoid arthritis was found to be not different from that of healthy normal adults A possible exception was plasma phospholipoid The plasma lipid levels were followed in 18 cases of rheumatoid arthritis during cortisone therapy Cortisone was administered orally in doses of 100 to 300 mg per day until the symptoms subsided and then in doses of 25 to 100 mg per day Plasma lipid concentrations were determined before and at intervals of two days or longer up to 29 days after cortisone therapy was started There was found to be no statistically significant alteration in the concentration of any plasma lipid during cortisone therapy In individual patients, upward and downward shifts in lipid levels were observed, but there was no consistent trend Thus the concentration of plasma lipids was found to be essentially normal in the 43 patients with rheumatoid arthritis and, in 18 of these, to be unaffected by administration of usual doses of cortisone

Leptospira Pomona Infection in Man and Animals in Iowa. R H Heeren, R E Evans and S L Hendricks J Iowa M Soc 44 285-289 (July) 1954 [Des Moines, Iowa]

With the live-stock population on Iowa farms counted in the millions, the potential reservoir for zoonoses is very large The raising, marketing, and processing of such a large number of animals results in repeated and close contacts of man with the animals and with the environment of the animals If the animals are infected with or are carriers of human pathogens, cases of illness among the human population are likely to develop In Iowa, animal cases of Leptospira pomona infection were reported every month The organism settles in the tubules of the kidneys of the animals and there it may remain and multiply for many months Such renal carriers shedding the organism afford ample opportunity to contaminate the enviroment of other animals and man The authors report the occurrence of Lept pomona infection in a 37-year-old veterinarian He became ill suddenly with extreme weakness and fever as the chief manifestations He was hospitalized with a temperature of 104 F, he remained in the hospital for six days and stayed in bed at home for four additional days He then resumed practice but felt weak and became easily fatigued for several weeks Two months after his discharge from the hospital an agglutination-lysis test was made on a specimen of the patient's blood, it revealed a positive reaction for Lept pomona antibodies in a dilution of 1 10,000 A second specimen of blood drawn three months later gave a positive reaction with Lept pomona antigen in a dilution of 1 512, and a third blood specimen collected 10 months later gave a positive titer of 1 100 for Lept pomona Prior to his illness, the patient had treated several herds of cattle that were suspected of being infected with leptospirosis, but serologic examinations were not made Subsequent to the patient's illness, clinically suspected cases of leptospirosis in both cattle and hogs in the area were confirmed by positive agglutination-lysis tests In a survey conducted among veterinarians who attended the annual meeting of the Iowa Veterinary Medical Association in January, 1953, blood samples were drawn from 148 veterinarians Agglutination lysis tests were made on 140 of these specimens representing 75 Iowa counties and 7 neighboring states Twenty-three gave some degree of reaction to Lept pomona antigen All of these specimens also reacted with Lept canicola antigen and the canicola titer was as high or higher than the pomona titer As is the case with cattle and hogs, many dogs may have subclinical leptospirosis and be renal shedders of Leptospira Since most veterinarians have been in close contact with dogs during their practice, their opportunity for subclinical infection with Lept canicola is not remote Of 20 blood specimens selected from residents of an Iowa mental hospital and tested for leptospirosis, 8 reacted with Lept canicola and Lept pomona antigens, one specimen reacted slightly with only Lept pomona, and the remaining 11 specimens were negative to all the Leptospira antigens used Leptospirosis should be suspected among persons with an acute febrile disease associated with lymphocytic meningitis and especially among those having contact with cattle or swine It should be differentiated from Q fever, brucellosis, and infectious mononucleosis Serologic tests for Lept pomona agglutinins are indicated on serums of human patients with iridocyclitis, inasmuch as this condition is occasionally a late complication of Lept pomona infection

The Aetiology of Gastric Carcinoma Elucidated by a Study of 302 Pedigrees A Videbaek and J Mosbech Acta med scandinav 149 137-159 (No 2) 1954 (In English) [Stockholm, Sweden]

The incidence of cancer of the stomach and other sites was studied in 3,294 relatives of 302 patients with gastric carcinoma A control study ascertained the incidence of cancer of the stomach and other sites in 4,782 relatives of 390 healthy persons Those studied were parents, siblings, children, and parents' siblings The incidence of carcinoma of the stomach was about four times as high in the relatives of the cancer patients as in the control group The incidence of cancer of other sites was not significantly greater for the relatives of the cancer patients Among the patients' relatives, 41% of all cases of cancer affected the stomach as compared with 17% in the controls Cancer situated in the fundus or body of the stomach generally manifests itself somewhat earlier than cancer of the pyloric antrum or canal On the other hand, the incidence of gastric carcinoma in the relatives of probands with cancer of the upper part of the stomach is not significantly higher than that in the relatives of patients with juxtapyloric cancer Discussing the possibility that the familial accumulation of gastric carcinoma may be due to exogenous factors, the authors mention the possible significance of sex, age, race, food intake, gastric ulcer, abuse of alcohol, occupation, and pernicious anemia It is concluded that exogenous factors alone cannot be the cause of the greatly increased incidence of gastric carcinoma in the relatives of patients with gastric carcinoma but that the predisposition to gastric carcinoma is inherited and that unknown exogenous factors probably may accelerate its development The predisposition to gastric carcinoma does not appear to be associated with a general predisposition to cancer While the risk of gastric carcinoma among the male and female relatives of patients with gastric carcinoma is 29 and 21% respectively, the corresponding risk values among relatives of healthy persons are 7 and 5%

Amino Acids and Amino-Aciduria A Drabløs Nord med 51 699-703 (May 20) 1954 (In Norwegian) [Stockholm, Sweden]

Added interest is attached to the symptom of aminoaciduria by the clinical use of paper chromatography, which is a valuable adjunct to liver function tests Pathological aminoaciduria may depend on hepatic injury, especially after acute or subacute forms of hepatitis, and chromatography allows demonstration of a general aminoaciduria at a time when other liver function tests give negative results Aminoaciduria can also be demonstrated in other infections or intoxications that affect the liver parenchyma, as in acute gastroenteritis in children A large group of pathological aminoacidurias occurs in anomalies of metabolism Paper chromatography has shown that in cystinuria not only cystine but also larger amounts of lysine, as well as arginine and histidine, are excreted in the urine The anomaly is ascribed to defective reabsorption in the tubuli of basic amino acids cystine, lysine, and arginine Such renal aminoacidurias are often manifested by combined aminoaciduria and glycosuria Paper chromatography has helped to establish cystinosis (Lignac-Fanconi s disease) as a distinct entity The disease, which is hereditary and usually appears in the first or second year of life, is marked by acidosis, proteinuria, glycosuria, and aminoaciduria with large deposits of cystine crystals in the reticulo endothelial tissue It is now regarded as a general deficiency in the intermediary protein metabolism, in which the breaking down of most of the amino acids is compromised Other more unusual diseases with aminoaciduria include gylcogenosis (Van Creveld van Gierke s disease), galactosemia, and Wilson s hepatolenticular degeneration General aminoaciduria may be found in celiac disease and chronic steatorrhea in adults Aminoaciduria has been demonstrated in certain familial dystrophias Three cases from the Children s Clinic in Bergen including the first case of cystinosis established in Norway illustrate conditions with aminoaciduria and the importance of paper chromatography

ACTH and Cortisone in the Treatment of Ulcerative Colitis· Evaluation of Their Prolonged Administration J M Elliott and J E Giansiracusa. New England J Med 250 969 975 (June 10) 1954 [Boston]

Thirteen patients between the ages of 25 and 74 with ulcerative colitis who had failed to respond to the usual medical measures including hospital care diet, antibiotics, transfusions, and, in several cases, psychotherapy, were given prolonged treatment with corticotropin (ACTH) and cortisone No patient was treated for less than five months, and several were treated almost continuously for two years A few patients were treated with cortisone alone, and several with corticotropin followed by cortisone as maintenance therapy The dose was determined by the therapeutic response Treatment resulted in a satisfactory remission in one patient. Remission probably occurred in another although the follow up period was too short to be conclusive One patient with long standing disease, extensive cicatrization of the colon and low grade bowel and systemic symptoms did not respond to treatment. In one patient who had a colectomy because of a preexistent ileostomy, an excellent symptomatic remission occurred, despite active inflammatory disease in the colon Two patients had roentgenographic or sigmoidoscopic evidence, or both, of progressive disease although they showed appreciable symptomatic improvement The remaining seven patients required either continuous or repeated treatment to maintain improvement. Long-continued suppressive therapy made possible a return to normal life and gainful occupation despite the persistence of low grade, active disease No complications of ulcerative colitis such as stricture, hemorrhage, and perforation, were observed No complications directly attributable to the metabolic effects of corticotropin and cortisone were noted, except for an episode of severe psychosis in one patient The therapeutic response followed a definite pattern. Symptomatic, sigmoidoscopic, and roentgenographic evidence of subsiding disease occurred in that order of frequency Extension or continuation of the process masked completely by a sense of well being and by suppression of diarrhea produced by the hormones can be determined only by sigmoidoscopic and x ray examination The dose correlation between clinical improvement and adequate adrenocortical stimulation in patients treated with corticotropin contributed materially to the authors conviction that the favorable response is related to the anti-inflammatory effects of the hormones and not to a nonspecific placebo effect. Relapse despite continued corticotropin therapy may not actually be a relapse because of the development of corticotropin resistance The long acting corticotropin gels now commercially available did not appear to lose potency or effectiveness with long-continued administration The authors study demonstrated that corticotropin and cortisone have a favorable effect on ulcerative colitis, it did not show that the natural course of the disease is significantly altered by their use. Prolonged treatment with corticotropin and cortisone does not cure ulcerative colitis, but seems to offer more than any other single form of therapy

SURGERY

Atrial Septal Defect Clinical and Physiologic Response to Complete Closure in Five Patients S G Blount Jr, H Swan, G Gensini and M C McCord Circulation 9 801-812 (June) 1954 [New York]

Five patients are presented in each of whom an atrial septal defect was closed under direct vision under conditions of open heart surgery They were selected from a group of 25 patients who had been intensively studied physiologically and in whom the diagnosis of uncomplicated atrial septal defect was strongly suspected The physiological studies performed did not yield any criteria for predicting the development of pulmonary artery hypertension Closure of atrial septal defects under direct vision is at present being advised for patients having a pulmonary blood flow three times the value of the systemic flow The presence of pulmonary hypertension does not in itself negate the possibility of successful operative therapy, but, when there is moderate to marked pulmonary hypertension with a high diastolic pressure level associated with a normal or slightly elevated pulmonary artery blood flow, surgical treatment is considered inadvisable Postoperative examination of the five patients showed definite evidence of the abolishment or lessening of all signs and symptoms that preoperatively were related to the great increase in the pulmonary artery blood flow

Experiences with Hypothermia in Cardiovascular Surgery H. W Scott, M Stahlman H. A Collins and others. J Tennessee M A 47 232-238 (June) 1954 [Nashville, Tenn]

The authors report their experiences in 11 cases where hypothermia was used as an adjuvant to cardiovascular surgery of congenital heart conditions All of the patients, who ranged in age from 3½ months to 30 years, but were mostly infants and children, were considered poor surgical risks There were four deaths The technique used was that of immersion in ice water after the induction of anesthesia Rewarming was achieved with immersion in warm water No hyperpyrexia reactions were encountered Subcutaneous fat necrosis definitely occurred in two patients, and presumably also in a third. This phenomenon appears to be the result of the cooling to the point of solidification of subcutaneous fat having a high melting point, such as is found in young infants It is believed to be not a serious complication As a result of their experiences, the authors intend to extend the indications for the use of hypothermia to patients who are better surgical risks than the ones in this series but are patients with congenital heart disease in whom a serious danger of myocardial anoxia is anticipated during operation "

Solitary Circumscribed Lesions of Lung Selection of Cases for Diagnostic Thoracotomy R C Jones and E A Cleve A. M A. Arch Int. Med. 93 842-849 (June) 1954 [Chicago]

Of 714 microscopically proved, isolated, round pulmonary lesions (so-called coin lesions) reported in the literature 225 (35%) were malignant tumors 284 (40%) were of an inflammatory nature, 89 (12 5%) were benign tumors, and the remaining 86 (12 5%) were a heterogeneous group of lesions The recent trend in management of such pulmonary infiltrates has been to excise them as soon as possible, on the presumption that they are either early bronchogenic carcinomas or unstable inflammatory lesions Since thoracotomy carries a definite morbidity and mortality rate, there is a need for objective data that might spare selected patients such an operation The relationship of age to malignancy in circumscribed nodular lesions of the lung was determined in 355 patients reported in the literature in which the age range was extended to include persons less than 35 years of age and in 14 of the authors patients with isolated circumscribed pulmonary lesions, whose average age was 32 years Only one patient with primary bronchogenic carcinoma was found in the age group 34 or less, and so its calculated incidence in persons aged less than 35 would be 0 27%, a much lower figure than has been heretofore indicated in the literature The incidence of malignant change in single noncalcified pulmonary nodules in persons aged over 50 was 44 to 70% The authors agree with other workers that the roentgenologic demonstration of calcium within nodular pulmonary lesions virtually excludes malignancy If the lesions are calcified and of an inflammatory nature, the danger of their breaking down to reactivate an infection is negligible Therefore, the lesion that contains calcium is not of significant danger to the patient and can be left in situ in asymptomatic persons All undiagnosed noncalcified lesions in old persons should be excised if there are no general contraindications to surgery Most undiagnosed noncalcified lesions in young persons should be excised, not because they are likely to be malignant but because most of them are unstable foci of inflammatory disease

Esophageal Varices Without Hemorrhage in Cirrhosis A Proper Indication for Shunting Procedures *E D Palmer, I B Brick and F J Jahnke Jr New England J Med 250 863-865 (May 20) 1954* [Boston]

Of 238 patients with microscopically proved portal cirrhosis, surgical portal decompression was carried out in 50 In 9 of the 50 patients splenorenal shunts were performed, portacaval shunts in 40 splenocaval shunt in 1, and ligation of the hepatic and splenic arteries in 1 Thirty eight of the 238 patients died, of the 38 5 died during the first 18 postoperative weeks, 15 died of hemorrhage before operation could be performed, 9 of complications of cirrhosis other than hemorrhage, and 9 of causes unrelated to cirrhosis Esophageal varices were observed esophagoscopically in 161 and with a history of hemorrhage in 74 Active hemorrhage from esophageal varices, gastric varices or erosive gastritis were observed and treated in 59 patients There were 24 deaths from cirrhosis among the 188 patients who were not treated surgically Esophagoscopic examination before death revealed esophageal varices in 22 of the 24 patients Liver failure was responsible for death in 18 and was brought on by variceal hemorrhage in 10 In the authors' experience a significant proportion of patients with cirrhosis who died as a result of bleeding from varices died during the first hemorrhage However effective emergency techniques for the control of active variceal bleeding may become, it is believed that only by prevention of hemorrhage can the over-all problem of mortality in cirrhosis be realistically approached It is considered particularly significant that only three of the 238 patients died of exsanguination from varices, whereas 10 died of liver failure initiated by hemorrhage that had been effectively controlled In view of the fact that many of the 50 patients who had surgical portal decompression were in desperate condition at the time of operation, whether or not they had bled previously, and in view of the potential danger of untreated varices in each patient, the surgical risk was small The attitude that the presence of esophageal varices constitutes a proper indication for surgical portal decompression is, therefore, considered justified, particularly because of the unfavorable results of a sizable hemorrhage in cirrhosis and the incidence of death from hemorrhage even in the first episode

Gastrectomy for Peptic Ulcer J E Thompson and C F Stewart Ann Surg 139 721-730 (June) 1954 [Philadelphia]

The treatment of peptic ulcer at Roosevelt Hospital during the last 17 years has reflected an increasingly aggressive attitude toward this problem Partial gastrectomy is now regarded as the operation of choice Patients treated surgically during this period fall into three groups those with gastric ulcer (128), those with duodenal ulcer (399), and those with massive hemorrhage (132) The operation was performed in 22 of the patients in the first group because a lesion indicative of carcinoma was either shown or strongly suggested by the gastrointestinal radiographs Obstructive symptoms led to the intervention in 18 others, 26 had had previous episodes of bleeding, and in the remaining 62 pain was persistent or the ulcer had failed to heal promptly under medical treatment The average age of these patients was at least 7 years older than that of those with duodenal ulcer, and this may explain the slightly higher death rate of 6 2% in group 1 as against 4 7% in group 2 Duodenal ulcer patients with pain that persists in spite of medical treatment, those in whom pyloric obstruction develops, and those with a history of repeated episodes of bleeding must also be considered as candidates for gastrectomy Leakage from the duodenal stump was responsible for 7 of the 19 operative deaths in this group, and acute hemorrhagic pancreatitis for 2 Patients with massive hemorrhage admitted to the hospital since Jan 1, 1947, have been subjected to emergency gastrectomy if massive bleeding has continued in spite of conservative treatment or if it has begun again after a period of quiescence The operation should be performed within 48 hours if bleeding is continuous or at the time of the first recurrent hemorrhage if it has stopped for a while Delay in operating leads to an increasingly poor prognosis when bleeding continues beyond a period of 72 hours from the onset of hemorrhage The over all mortality rate among the 91 patients subjected to emergency gastrectomy was 8 8%, but in six patients with a blood urea nitrogen level of over 50 mg per 100 cc the rate rose to 33 3% Elevation of the blood urea nitrogen level above 50 mg per 100 cc should, therefore, be regarded as a contraindication to emergency gastrectomy Extensive blood loss associated with hypoproteinemia probably accounts for the high incidence of wound disruption (8 8%) in these patients Gastrectomy was considered a failure if it was followed by the development of a marginal ulcer, a dumping syndrome severe enough to be incapacitating, or other troublesome sequelae directly attributable to the original operation, on this basis, follow-up showed failures in 6 7% of 89 patients in group 1, 7 3% of 288 patients in group 2, and 7 0% of 76 patients in group 3

NEUROLOGY & PSYCHIATRY

Work Adjustment Five to Ten Years After Bilateral Prefrontal Lobotomy Follow-Up Study of 86 Patients with Chronic Mental Disease *M Greenblatt, M Wingate and H C Solomon New England J Med 250 856 860 (May 20) 1954* [Boston]

Greenblatt and associates report on 49 women and 37 men with mental illness who were subjected to bilateral prefrontal lobotomy between October, 1943, and April, 1946 Forty three (50%) had been ill for five years before operation, 21 (about 25%) for 5 to 10 years, and the remaining 22 (25%) for 10 years or longer, and their progress without lobotomy was considered hopeless In the period before illness most of the patients had been skilled laborers, clerical employees, or housekeepers Follow-up study of these 86 patients was primarily concerned with the work adjustment of the patients 5 to 10 years after the lobotomy The specific focus of the study was to determine not only how much improvement followed lobotomy but also whether the improvement was sustained over the years, and especially how the postoperative level compared with the preoperative level of work capacity both before illness and during illness At 5 to 10 years after the operation, 51 of the 86 patients were hospitalized and 35 were in the community Of the 35 community patients, 24 (68%) were working full time and 5 (14%) part time, 5 were not working at all Twenty-one (60%) of the 35 patients were working at the same type of work as they had been before their illness These findings indicate a vast improvement of work adjustment after operations The work adjustment of the community patients at the end of the follow-up period of 5 to 10 years was considerably higher than that of the hospitalized patients, and nearly up to the level before illness Hospitalized patients made significant gains in work adjustment compared to the preoperative level The postoperative adjustment of housewives was very satisfactory, considering their uniformly poor work adjustment during illness (all had been efficient housewives before illness) Comparison of the improvement figures in a follow-up study of one to four years with those in the present 5 year to 10-year survey revealed, generally, maintenance of improvement level over the years, for hospitalized patients there is a strong suggestion that the work adjustment was better in the later than in the earlier follow up study The operation thus succeeded in releasing to a greater or lesser degree the work potential of a substantial number of these patients both in the hospital and in the community These results are encouraging as an indication for further use of the lobotomy operation

Benign (Favorable) Types of Brain Tumor End Results (up to Twenty Years), with Statistics of Mortality and Useful Survival G Horrax. New England J Med 250 981-984 (June 10) 1954 [Boston]

One thousand eight hundred fourteen patients with intracranial tumors were treated at the Lahey Clinic between 1933 and 1952 Eight hundred sixty two tumors (47 5%) were termed favorable so far as operability and a prolonged period of useful life up to 20 years are concerned Included in the 862 were 96 pituitary adenomas The patients with this type of tumor were not operated on, but received x-ray treatment with resulting improvement. Seven hundred sixty-six of the 862 patients were operated on 96 of the 766 died, and 670 survived the operation. These 670 patients and the 96 with pituitary adenomas treated by irradiation make a total of 766 patients who either survived operation or were relieved by x-ray therapy Of these 766 patients, 592 were engaged in useful activities for one to 20 years, most of them for 5 years or more This number represents 68 6% of the original 862 patients and 77 2% of the 766 who survived the operation or were relieved by x-ray therapy If one considers only the patients operated on, there were 670 survivors, and of these, 496 lived useful lives for the periods followed, a useful survival rate of 74 1% If one deducts from the 862 patients the 96 with pituitary adenoma who received only irradiation therapy and also those with cerebral astrocytomas and oligodendrogliomas (since only the five-year survivals in these groups were considered and hence their mortality rate would be zero) there are 723 patients left among whom the 96 deaths occurred This makes the case mortality 13 2% for all the patients with benign brain tumors dying in the hospital from any cause after the operation

Increased Intracranial Pressure Caused by Increased Protein Content in the Cerebrospinal Fluid An Explanation of Papilledema in Certain Cases of Small Intracranial and Intraspinal Tumors, and in the Guillain Barré Syndrome W J Gardner, D K. Spitler and C Whitten. New England J Med. 250 932-936 (June 3) 1954 [Boston]

The suggestion is put forth that increased intracranial pressure and communicating hydrocephalus may result from any chronic process that significantly raises the level of the protein content of the cerebrospinal fluid Pertinent experiments and case reports of workers other than the authors are described A case of ependymona of the cauda equina producing papilledema, one of a small acoustic tumor-producing communicating hydrocephalus, and a third of Guillain-Barré syndrome (virus encephalomyelitis) with papilledema are cited and explained in terms of the authors theory Two experiments that they performed on dogs are described. The first, an attempt to produce papilledema by repeated cisternal injection of human albumin and gamma globulin failed The second succeeded, and showed that a protein rich fluid (autologous serum) is absorbed more slowly from the subarachnoid space than one lacking in protein (Ringer's solution) It is concluded that the causing of increased intracranial pressure papilledema, and communicating hydrocephalus by a small tumor located anywhere on the cerebrospinal axis is achieved by the escape of serum protein into the cerebrospinal fluid through the imperfect walls of the blood vessels of the neoplasm The protein molecules become piled up against the semipermeable membrane that constitutes the brain blood barrier This progressive deposition causes partial obstruction of the absorptive areas of the cerebrospinal fluid, with resulting rise in pressure The same process may operate in the Guillain Barré syndrome to produce papilledema. This process is completely reversible, unlike that which occasionally follows a purulent meningitis.

The Treatment of Herpes Zoster, Neuralgias, and Neuritis with Thiamine Potentiated with Neostigmine (Thiastigmine) S Waldman and L. Pelner New York J Med 54 1927-1930 (July 1) 1954 [New York]

A preparation containing essentially thiamine chloride and neostigmine was used in the treatment of 23 patients with herpes zoster and 29 patients with various neuralgias and neuritides Uniformly good results were obtained in the cases of herpes zoster, while there were some failures in the neuritic series The therapy is postulated on the physiologic action of both thiamine and neostigmine as cholinesterase inhibitors permitting greater liberation of acetylcholine Metabolic correction at nerve terminals may be the pharmacological action.

PEDIATRICS

Observations on the Diagnosis of Bouillaud's Disease in Connection with Early Hormonal Treatment R Debré P Mozziconacci and N Keller Semaine hop Paris 30 2063-2068 (May 22) 1954 (In French) [Paris, France]

Prompt recognition of the initial signs and symptoms of rheumatic fever will often make it possible to render at least a presumptive diagnosis before the heart is affected Administration of corticotropin (ACTH) or cortisone should then be started at once, because experience has shown that these hormones, though the best treatment now available for acute rheumatic fever, are most effective when used before the cardiac lesions have appeared The initial period of the disease varies in length from 48 hours to more than a fortnight but may be considered at an end when the number of signs and symptoms present warrants a positive diagnosis of rheumatic fever The initial signs and symptoms, or those that appear before a definite diagnosis can be made, fall into two groups primary and secondary The primary signs—joint pains, cardiac manifestations, chorea, rheumatic erythema, and Meynet's nodes—are well known, but the importance of the secondary ones—muscular pain, joint pain appearing only with fatigue certain minor cardiac functional disturbances, such as precordial pain or dyspnea, sore throat, and abdominal pain—should not be overlooked. A provisional diagnosis of rheumatic fever is warranted whenever a patient presents several of the primary signs or one of the primary signs accompanied by several of the secondary signs, and in either case treatment with corticotropin or cortisone should be started without further delay Analysis of 81 cases showed that observance of these rules would have led or did lead, to a correct diagnosis between the 1st and the 5th days in 44 between the 6th and the 15th days in 24 and after the 15th day in 9 Early diagnosis is desirable both because failure to recognize rheumatic fever before the heart has been affected may have serious consequences and because the impossibility of determining in advance which patients will have a benign course and which will have severe or even fatal cardiac injury makes it essential to start treatment in all cases as soon as possible

Hormonal Treatment of Bouillaud's Disease in Its Acute Phase. R Debré, P Mozziconacci and M K. Caramanian Semaine hop Paris 30 2091-2100 (May 22) 1954 (In French) [Paris France]

Corticotropin (ACTH) and cortisone were used in treating 193 patients with acute rheumatic fever during a two and one-half year period The patients included 20 with severe cardiac rheumatism, 91 with ordinary cardiac rheumatism characterized by repeated attacks and 82 with acute articular rheumatism without cardiac involvement. There were no controls because the authors did not feel justified in depriving any severely ill patient of treatment that might prove beneficial. Their object in each case was to arrive at an effective dosage to continue the treatment as long as necessary, and, with the help of adjuvant measures to obtain the best possible final result. Some of the patients in the first group had pericarditis with effusion some had severe pancarditis with heart failure and impairment of the general condition in some pancarditis and pericarditis appeared concurrently; and in others streptococci were recovered from blood cultures and necessitated combined hormonal and antibiotic treatment. The pericardial manifestations were the first

Review and Appraisal of Present Knowledge Concerning Lupus Erythematosus. H E Michelson A M A Arch Dermat. & Syph 69 694-708 (June) 1954 [Chicago]

The name lupus erythematosus has been applied to a variety of conditions that at first seem to have little in common The knowledge about chronic discoid lupus erythematosus has not changed very much since this type was first described However, a thorough knowledge of cutaneous lesions, the recognition of their great variation, and especially the observations that suggested that the chronic lesion in its early state was identified, both clinically and microscopically, with those cutaneous lesions noted by early dermatologists in acutely ill patients and diagnosed as acute disseminated lupus erythematosus, served as the foundation for the present-day broad concept of systemic lupus erythematosus The classic acute cases furnish the material for investigations The true acute cases can be diagnosed by dermatologists with a very high degree of accuracy Patients who have no skin lesions, even though the presence of L E cells has been demonstrated, constitute a group that has attracted much attention, but much more time is necessary before the knowledge concerning them can be as complete as that which has been accumulated concerning patients with the acute septic type of the disease One should stress the organs that may be involved in systemic lupus erythematosus rather than its symptomatology When the heart, the kidneys, or other organs are involved in systemic lupus erythematosus, the symptoms relative to the particular organ are based on dysfunction of, or destructive alterations in, that organ and can only be attributed to lupus erythematosus by implication For example, one cannot speak of lupus erythematosus nephritis, but must state that nephritis is present in a patient who has systemic lupus erythematosus The diagnosis of systemic lupus erythematosus is made on the organism as a whole Patients with subacute lupus erythematosus under the present classification always have skin lesions Here again dermatological diagnosis is satisfactory But is there a subacute form of systemic lupus erythematosus? Michelson believes there must be, for in many of the systemic cases there is a long prodromal history This suggests that the awareness that is essential to diagnosing the severe systemic type must be extended so that clinicians in the future may learn the symptomatology of incipient systemic lupus erythematosus Early diagnosis would mean early treatment The author believes that if rest treatment could be instituted, the prognosis could be greatly improved

Limitations of Cortisone and Corticotropin in Dermatology P A O'Leary J Indiana M A 47 614-618 (June) 1954 [Indianapolis]

According to O'Leary, cortisone and corticotropin will not cure patients with disease of the skin, although these agents will extend the life expectancy among some of those who have acute systemic lupus erythematosus or pemphigus The remissions produced by treatment are variable and unpredictable although in a few cases improvement was maintained for three years Relapses are less responsive to treatment In diseases less serious and characterized by inflammatory reactions such as urticaria, dermatitis venenata, drug eruptions, and erythema multiforme, treatment with the hormones will shorten the course and make the patient more comfortable while the disease is running its course In certain conditions of the nature of psoriasis, seborrheic dermatitis dermatomyositis and neurodermatitis, temporary improvement will appear after treatment The benefit however, is of short duration, the relapses are more severe than the original condition and the character of the complications the drugs may produce contraindicates their use except under exceptional circumstances. Because the complications from treatment may be much more serious than the cutaneous disease, it is recommended that cortisone and corticotropin be given only after due consideration of both the benefit and the ill effects that may occur The steroids may affect every system in the body, and their usefulness in dermatology is limited to decreasing the reaction of tissue to injury and to decreasing allergic and hypersensitivity reactions Although neither drug is curative, both are of help in a few dermatological diseases Once treatment is started, it is necessary to maintain adequate but not excessive dosage, to discontinue administration of the drug gradually and slowly, and to anticipate the onset of complications during and after treatment

THERAPEUTICS

Hexamethonium in Treatment of Arterial Hypertension R Chiaverini and W Nogueira da Silva Rev paulista med 44 29-40 (April) 1954 (In Portuguese) [São Paulo, Brazil]

The group of 72 selected patients with arterial hypertension observed by the authors included 70 patients with essential hypertension and two with chronic glomerulonephritis The patients were between the ages of 40 and 70 years The treatment was ambulatory It consisted of administration of hexamethonium bromide, which was given either intramuscularly or by mouth The therapeutic dose was previously determined by means of two or three tests with progressively increasing doses of the drug and measuring of the changes in the arterial blood pressure every 1 or 2 minutes for half an hour during the test. When the efficacious hypotensive dose for each patient was found, it was administered three times a day Six of the eight patients who were given the drug by mouth reported marked symptomatic improvement with moderate lowering of the blood pressure However, the pressure returned to the original level as soon as the drug was discontinued The other two patients in this group discontinued the treatment because of unpleasant effects The efficacious hypotensive doses for intramuscular injections varied between 0 2 and 0 5 cc of a solution containing 25 mg of the drug for 1 cc of the solution These doses caused a lowering of the systolic pressure that was more marked than that of the diastolic pressure The lowering of the systolic pressure was more marked in patients with initial higher arterial blood pressure than in those with relatively lower figures of arterial blood pressure Sixteen patients in this group discontinued the treatment within one week The symptomatic improvement obtained by intramuscular injections of hexamethonium bromide in the remaining 48 patients who continued the treatment was excellent in 31 and mediocre or nil in 17 patients The effect on the hypertension was significant in 33 patients and nil in 15 The symptomatic improvement did not correspond to the lowering of the arterial blood pressure Lowering of the arterial pressure under the treatment was followed by a return of the pressure to the original level after its discontinuation The treatment is indicated for patients with acute arterial hypertension and acute symptoms in order to provide the patient with a long period of symptomatic relief that can be maintained as long as the treatment lasts

Effects of Nitrogen Mustard Therapy in Patients with Rheumatoid Arthritis W D Paul, R E Hodges, W B Bean and others Arch Phys Med. & Rehabil 35 371-380 (June) 1954 [Chicago]

Paul and associates have established base line characteristics in rheumatoid arthritis in an attempt to evaluate various treatments Previously, they studied the alteration of plasma proteins in rheumatoid arthritis Attempts also were made to use the changes of synovial membrane permeability as a measure of the effectiveness of selected treatments but the difference in membrane permeability did not parallel therapeutic response The authors extended their studies to include changes in calcium, phosphorus and nitrogen metabolism, 17-ketosteroid excretion, glucose tolerance and protein-bound iodine levels Since hypersensitivity reactions are believed to play a role in rheumatoid arthritis, and since nitrogen mustard is known to inhibit some phenomena of hypersensitivity some investigators including the present authors tried nitrogen mustards in rheumatoid arthritis Encouraging results induced the authors to investigate clinical, chemical, and metabolic changes that occurred after the administration of nitrogen mustard Seventeen patients with severe active deforming rheumatoid arthritis of long duration were studied before and after treatment with nitrogen mustard Sixteen patients showed considerable improvement after therapy The improvement lasted for an average of 12 weeks The abnormalities found in rheumatoid arthritis were hypochromic anemia, mild leukocytosis, rapid erythrocyte sedimentation rate, ab-

the occurrence of lymphocytic infiltrate and follicle formation in breast carcinomas was associated with improved survival periods The authors had observed that survival in cases of breast carcinoma with minimal sinus histiocytosis of the regional nodes was correlated with the degree of differentiation of the primary tumor In view of these observations they compared the gross and microscopic features of two series of gastric carcinoma cases One series consisted of 66 patients known to have died within three years postoperatively The other included 54 patients who survived five years or longer postoperatively The data obtained indicated that longer survival in cases of gastric carcinoma was associated with the presence of a lymphocytic reaction in the stroma of the primary tumor and/or sinus histiocytosis of the regional lymph nodes These features were more critically related to survival than the age or sex of the patient, the preoperative delay, the gross or microscopic growth pattern of the tumor, or the presence or absence of regional lymph node metastases at the time of surgery

RADIOLOGY

The "False Positive" Lumbar Myelogram W V Trowbridge and J D French Neurology 4 339-344 (May) 1954 [Minneapolis]

The accuracy of the myelogram in patients with lumbar disk lesions has been found to be far from perfect. False negative" findings have been regarded as the largest source of error in lumbar myelography Similarly, false positive" myelograms have been described repeatedly It is not uncommon for the surgeon to explore interspaces showing small, suggestive defects at the same time that regions with massive defects are investigated, and the area of minimal defect shows no disease The nature of myelography militates against its use for purely academic purposes and myelograms are unobtainable in persons whose spinal subarachnoid space is clinically normal The opportunity to survey myelographically the lumbar subarachnoid space is possible, however, in those persons whose clinical disorders are limited to the cervical or high dorsal regions In the past two years all persons studied with cervical myelography were carefully questioned by Trowbridge and French concerning previous difficulties referable to the lumbar spinal region Twenty five patients denied any history of low back pain, sciatica, or other evidences of lumbar nerve root or cauda equina compression, but in 14 of these 25, abnormal lumbar myelograms were found This suggests that 'false positive" myelograms are probably not so uncommon as previously thought The presence of a defect in the lumbar myelogram does not necessarily indicate the site of a symptomatic lesion nor does it prove that conservative therapy will be unsuccessful The lumbar myelogram should not be used in questionable cases or to establish the presence of an abnormality for medicolegal purposes, although it continues to be a useful adjunct to clinical evaluation The myelogram should be reserved for the study of those patients for whom surgery is contemplated, and even then should be subjected to a critical evaluation in the light of clinical findings

Roentgenologic Differential Diagnosis of True Transpyloric Prolapse of Gastric Mucosa W Frik. Fortschr Geb Röentgenstrahlen 80 587-591 (May) 1954 (In German) [Stuttgart, Germany]

Frik points out that the differential diagnosis of prolapse of the gastric mucosa is becoming less and less definite Whereas at first the mushroom" or parasol" shadow was regarded as a sure sign of prolapse of the gastric mucosa, it is now realized that such shadows may also be produced if during roentgen examination the patient is in the prone position and if during a certain peristaltic phase the pyloric canal and the antrum are pushed toward the duodenal bulb Frik describes a new roentgenologic sign of the prolapsing gastric mucosa A horizontal linear area of contrast medium appears between the prolapsed mucosal folds and the mucosa of the base of the bulb This sign aids in differentiating true prolapse from an impression of the base of the duodenal bulb or an edematic inflation of the mucosal folds of the duodenal bulb

ANESTHESIA

The Use of Arfonad in a Modification of the Technique of Controlled Hypotension D M Little, L. J Hampton and D C Grosskreutz. Surgery 35 857-866 (June) 1954 [St Louis]

The introduction of thimethaphan camphorsulfonate (*d*-3,4[1 - 3'-dibenzyl-2'-ketoimidozolido]-1,2-trimethylene thiophanium *d*-camphor sulfonate) (Arfonad), a potent ganglionic blocking agent, provides a modified form of controlled hypotension during anesthesia, whereby a relatively bloodless operative field is produced at higher, and therefore presumably safer, levels of blood pressure than those that were advocated in the past Thimethaphan camphorsulfonate in single intravenous doses of 0 1 or 0 2 mg per kilogram of body weight will produce a prompt but evanescent depressor response of the arterial pressure It is thus possible to employ the drug by a continuous intravenous infusion technique Three minutes after the thimethaphan camphorsulfonate infusion was begun at a rate of 8 mg per minute in a patient subjected to radical mastectomy, the systolic pressure had been lowered from 118 mm Hg to 74 mm Hg indicating a substantial susceptibility to the drug. Excessive vascular oozing was stemmed during this initial depression of the blood pressure and the infusion rate was therefore decreased to permit the blood presure to rise lowly When the pressure reattained a systolic level just above 85 mm Hg, bleeding was once again noted in the operative field, hence, the optimal pressure was established as 85 mm Hg and the infusion rate was subsequently regulated to maintain this level of blood pressure in order to provide a continuous dry operative field Nine minutes later, by way of illustrating the prompt resumption of normotension the thimethaphan camphorsulfonate infusion was discontinued, and the preoperative blood pressure was restored within a 10-to-12-minute interval In a second patient who underwent radical mastectomy a minute to-minute control of the level of the blood pressure was accomplished by increasing or decreasing the rate of administration of a dilute intravenous infusion of thimethaphan camphorsulfonate When the infusion was discontinued at the end of the surgical intervention, there was a prompt rise toward the preoperative blood pressure level Hypotension was induced in a patient undergoing abdominoperineal resection, and 95 mm Hg were found to be the optimal level of the blood pressure which was maintained fairly well throughout the first hour of operation, then brisk hemorrhage occurred from the superior hemorrhoidal artery and the thimethaphan camphorsulfonate infusion was discontinued, since blood loss occurring in the presence of generalized arteriolar dilatation and hence in the absence of the body s compensatory cardiovascular reflexes presented an additional risk. The blood pressure returned to its preoperative systolic level of 100 mm Hg within 20 minutes These three cases illustrate the use of thimethaphan camphorsulfonate as a method of ascertaining the level of the systolic blood pressure at which bleeding is controlled during surgery, further providing a means of maintaining this level with pronounced controllability, and at the completion of surgery permitting rapid reversal of arteriolar dilatation and the hypotensive state There are certain disadvantages to the use of thimethaphan camphorsulfonate that are illustrated by three additional cases A patient undergoing cystectomy and ureteral transplantations was extremely susceptible to thimethaphan camphorsulfonate which produced wide and presumably dangerous swings in blood pressure, and control thus became difficult. In a patient who had radical neck dissection, a very rapid infusion rate and a total dosage of 500 mg of thimethaphan camphorsulfonate failed to lower the blood pressure to any pronounced degree or to achieve any visible reduction of bleeding in the operative site, and the technique was subsequently abandoned in this case Tachyphylaxis occurred during the intravenous administration of dilute infusions of thimethaphan camphorsulfonate in a patient subjected to thyroidectomy, and increasing dosages of the drug were required to maintain the optimal level of blood pressure throughout the operation

ANSWER—The situation that has been described can be accounted for only in one of two ways Either the vasa were not ligated at the time of the surgery, or, if they were, the sutures cut through the ends of the vasa and the ends effected a spontaneous reanastomosis This has been observed to happen in quite a number of patients and is not too unusual The fact that the pathological report verified the removed specimens as 'sections of vas deferens" sounds conclusive, but instances have occurred in which a fallacious diagnosis of this sort has given rise to the illusion that the vasa were resected when the structure removed was the artery to the vas or the spermatic artery

ANSWER—A sperm count of 62 million eight months after vasectomy would hardly be possible if the vasectomy had been bilateral and made according to the description given in this case Although cases have been cited in which clinical evidence would suggest recanalization of the vas after bilateral vasectomy, these have not been verified by histological or anatomic evidence It would seem probable that some error has been made either in the severance and sealing off of both vasa or in the pathological report of tissue removed from both sides The fluctuation that occurred in the three sperm counts is not of great significance and might be explained by various factors such as febrile episodes or fatigue If the present circumstances still warrant vasectomy, it would be advisable to repeat the operation with wider resection of both vasa and ligation with doubling back of the severed ends It would be of interest to make repeated sperm counts starting soon after operation

ELECTROLYTE CONTENT OF BANK BLOOD

TO THE EDITOR—*Please send me available information regarding electrolyte content of bank blood I am especially interested in such factors as possible electrolyte shifts and changes*

M D, Minnesota

ANSWER—The electrolyte content of a bottle of bank blood is determined by several factors, including (1) the donor's original blood levels, which may be presumed to be within the normal range, (2) the anticoagulant solution employed (in the United States, usually acid-citrate dextrose solution), which as it is ordinarily used will add to each 500 ml of blood the following ingredients trisodium citrate ($Na_3C_6H_5O_7\ 2H_2O$) 1 165 gm, citric acid ($C_6H_8O_7\ H_2O$) 0 6 gm, and dextrose ($C_6H_{12}O_6\ H_2O$) 1 84 gm together with about 50 cc to 125 cc of pyrogen-free distilled water (water for injection U S P), and (3) changes in the bottle of bank blood that are dependent on the individual characteristics of the donor, temperature and other storage conditions, and time Ordinarily bank blood is used for whole blood transfusion not longer than 21 days after venesection Reference may be made to studies by Rappaport (*J Clin Invest* 26 591 [July] 1947), from whose charts the following approximations are taken

Mg per 100 Cc		Freshly Drawn	10 Days Old	20 Days Old
Inorganic phosphorous	Cells	5	20	25
	Plasma	3	5	8
Potassium	Cells	85	75	68
	Plasma	5	12	18
Sodium	Cells	18	22	30
	Plasma	155	152	148
Lactic acid		20	80	125
Hydrogen ion (pH)		7 1	6 7	6 6

A 500 ml transfusion represents about 10% of normal blood volume of a 150 lb (68 kg) recipient, i e, electrolyte deviations in the bank blood are diluted tenfold in the recipient, whose body processes are simultaneously operating to correct the deviation Enormous use of bank blood over a period of years has confirmed the general impression that its electrolyte pattern is ordinarily well within the recipient's tolerance If the volume of blood administered is relatively larger, if the blood be administered very rapidly, or if the recipient's disease affects electroly control, at least theoretical questions of safety may arise However, instances of difficulty attributable to electrolytes of th bank blood seem rare, potassium and citrate have been suspecte

VITAMIN E

TO THE EDITOR—*Is vitamin E effective in arteriosclerosis an other cardiovascular diseases? Are there any ill effects fro the use of vitamin E over a period of time?*

Emmett Doles, M.D, Austin, Texas

ANSWER—Despite favorable reports, it is generally agree that vitamin E is without beneficial effect in arteriosclerosis an other cardiovascular diseases Even in large doses such as contained in 6 cc of wheat germ oil administered daily, there ar no serious toxic effects

VALUE OF ROUTINE LABORATORY TESTS

TO THE EDITOR—*I concur with the answers to the question o the value of routine laboratory tests in* THE JOURNAL, *May 1 1954, page 88, but wish to add an item from personal ex perience I am convinced that in addition to routine bloo counts and urinalysis a fasting blood sugar test should b made on every person before major surgery I recognize tha in many emergencies this might be impracticable I hav encountered a number of patients with fasting blood suga values as high as 400 mg per 100 cc, in whom the urin was sugar free and diabetes was hitherto unrecognized I know of an elderly diabetic whose physician decreased insulin dosage and increased carbohydrate allowance as the glycosuria decreased The patient grew worse and changed physicians The new physician found only a trace of sugar in the urine, a very high blood sugar, a vanishing carbon dioxide combining power, and a developing coma Over the past 30 years I have performed several autopsies on hospital patients who died within 24 hours after laparotomy without regaining consciousness To me, the postoperative histories in these cases were far more suggestive of diabetic coma than surgical shock The urines were sugar free, and no blood sugar determinations had been made Autopsy revealed no satisfactory cause of death I am familiar with two cases that lend weight to my opinion They are so exactly parallel that one description will do for both One occurred in a leading Los Angeles hospital early in 1927 and the other in a university hospital in the Great Lakes region the winter of 1928 Both patients were men under the care of competent urologists Thorough checks on renal function, etc, were made, but inasmuch as the urine was sugar free, no blood sugar determination was made Both men underwent suprapubic prostatectomy under ether anesthesia Both were returned to their rooms shortly before noon By midafternoon both were at least as deeply anesthetized as when they left surgery In each case a smart intern had a blood sugar determination made and in each case the patient was found to be in deep diabetic coma In each case the intern was responsible for saving the patient's life Obviously no statistics are available on such matters I cannot recall having seen reports of any such cases published I know from experience that a sugar-free urine is no guarantee that the patient is not seriously diabetic I am convinced that a routine fasting blood sugar test on all candidates for surgery or at the time of hospital admission not only would be a worthwhile safety factor but would provide many surprises*

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EDITORIAL NOTE There is much truth in what Dr Schaefer writes In general it would be safer to have both the urine and the blood sugar tests performed after a meal rather than during fasting Thus we still do not know whether cataracts are more or less frequent in diabetics than in nondiabetics, because analyses of urine and blood on such patients are usually done with the patient in the fasting state and neither the fasting urine nor blood sugar necessarily would disclose diabetes